Oracle® VM

Release Notes for 3.3.3

E63729-01
July 2015

Oracle Legal Notices

Copyright © 2011, 2015 Oracle and/or its affiliates. All rights reserved.

This software and related documentation are provided under a license agreement containing restrictions on use and disclosure and are protected by intellectual property laws. Except as expressly permitted in your license agreement or allowed by law, you may not use, copy, reproduce, translate, broadcast, modify, license, transmit, distribute, exhibit, perform, publish, or display any part, in any form, or by any means. Reverse engineering, disassembly, or decompilation of this software, unless required by law for interoperability, is prohibited.

The information contained herein is subject to change without notice and is not warranted to be error-free. If you find any errors, please report them to us in writing.

If this is software or related documentation that is delivered to the U.S. Government or anyone licensing it on behalf of the U.S. Government, then the following notice is applicable:

U.S. GOVERNMENT END USERS: Oracle programs, including any operating system, integrated software, any programs installed on the hardware, and/or documentation, delivered to U.S. Government end users are "commercial computer software" pursuant to the applicable Federal Acquisition Regulation and agency-specific supplemental regulations. As such, use, duplication, disclosure, modification, and adaptation of the programs, including any operating system, integrated software, any programs installed on the hardware, and/or documentation, shall be subject to license terms and license restrictions applicable to the programs. No other rights are granted to the U.S. Government.

This software or hardware is developed for general use in a variety of information management applications. It is not developed or intended for use in any inherently dangerous applications, including applications that may create a risk of personal injury. If you use this software or hardware in dangerous applications, then you shall be responsible to take all appropriate fail-safe, backup, redundancy, and other measures to ensure its safe use. Oracle Corporation and its affiliates disclaim any liability for any damages caused by use of this software or hardware in dangerous applications.

Oracle and Java are registered trademarks of Oracle and/or its affiliates. Other names may be trademarks of their respective owners.

Intel and Intel Xeon are trademarks or registered trademarks of Intel Corporation. All SPARC trademarks are used under license and are trademarks or registered trademarks of SPARC International, Inc. AMD, Opteron, the AMD logo, and the AMD Opteron logo are trademarks or registered trademarks of Advanced Micro Devices. UNIX is a registered trademark of The Open Group.

This software or hardware and documentation may provide access to or information about content, products, and services from third parties. Oracle Corporation and its affiliates are not responsible for and expressly disclaim all warranties of any kind with respect to third-party content, products, and services unless otherwise set forth in an applicable agreement between you and Oracle. Oracle Corporation and its affiliates will not be responsible for any loss, costs, or damages incurred due to your access to or use of third-party content, products, or services, except as set forth in an applicable agreement between you and Oracle.

Documentation Accessibility

For information about Oracle's commitment to accessibility, visit the Oracle Accessibility Program website at http://www.oracle.com/pls/topic/lookup?ctx=acc&id=docacc.

Access to Oracle Support

Oracle customers that have purchased support have access to electronic support through My Oracle Support. For information, visit http://www.oracle.com/pls/topic/lookup?ctx=acc&id=info or visit http://www.oracle.com/pls/topic/lookup?ctx=acc&id=trs if you are hearing impaired.

Table of Contents

Preface vii
1 Audience vii
2 Related Documents vii
3 Command Syntax viii
4 Conventions viii
1 Introduction 1
1.1 Upgrading Oracle VM 1
1.2 Oracle VM Storage Connect plug-ins 2
1.3 Using Oracle VM Server for SPARC with Oracle VM Manager 2
2 What's New in Oracle VM? 3
2.1 What's New in Oracle VM Release 3.3.3? 3
2.2 What's New in Oracle VM Release 3.3.2? 5
2.3 What's New in Oracle VM Release 3.3.1? 11
2.4 What's New in Oracle VM Release 3.2.1? 15
2.5 What's New in Oracle VM Release 3.1.1? 17
2.6 What's New in Oracle VM Release 3.0.3? 18
2.7 What's New in Oracle VM Release 3.0.2? 19
3 Notable Bug Fixes 21
3.1 Bug Fixes in Oracle VM 3.3.3 21
3.2 Bug Fixes in Oracle VM 3.3.2 22
3.3 Bug Fixes in Oracle VM 3.3.1 24
3.4 Bug Fixes in Oracle VM 3.2.1 26
3.5 Bug Fixes in Oracle VM 3.1.1 27
3.6 Bug Fixes in Oracle VM 3.0.3 28
4 Supported Guest Operating Systems 29
4.1 Oracle VM Server for x86 Supported Guest Operating Systems 29
4.2 Oracle VM Server for SPARC Supported Guest Operating Systems 31
5 Configuration Limits 33
6 Known Limitations and Workarounds 37
6.1 Solaris DLMP Service Unavailable 40
6.2 PVHVM Guest Virtual Machines Become Unresponsive After Live Migration 40
6.3 GRO Must Be Disabled After an Upgrade When Routing/Bridging with IXGBE Driver 40
6.4 Converting the deprecated ETHTOOL_OFFLOAD_OPT to ETHTOOL_OPTS 40
6.5 Restart Virtual Machines After Upgrade 40
6.6 LRO Setting Bridge Interface 41
6.7 Issue with Tagged VLAN Interface after Kickstart Installation 41
6.8 Disable Transitional Update Repository 41
6.9 (X86 Only) SWIOTLB Buffer Errors When Using Jumbo Frames on Oracle VM Server 41
6.10 Operation Transactions 41
6.11 Only One Instance of the UI Per Browser Supported 42
6.12 Cannot Connect to VM Console After Oracle VM Manager Reinstall With Same UUID 42
6.13 IPv6 Updates On Some Microsoft Windows Guests Do Not Reflect in Oracle VM Manager 42
6.14 Incorrect Text Color After Acknowledging VM Errors 42
6.15 Unable to Copy Text or Take Screen Shots of Error Dialogs 42
6.16 Safari Web Browser on Windows is not Supported 43
6.17 Internet Explorer 11 Web Browser is not Supported 43
6.18 Data Model Refreshes in the User Interface 43
6.19 Object Lock Prevents Some Operations 43
6.20 Aborting Some Jobs can Lead to Inconsistencies Between Oracle VM Manager and an Oracle VM Server 44
6.21 Unable to Configure NTP For All Servers 44

6.22 The Edit SAN Server Dialog Shows an Access Tab when Editing Fibre Channel Storage 44
6.23 Some x86 Specific Virtual Machine Parameters Are Modifiable for Guests Running On SPARC 45
6.24 Installer Text for Solaris 10 is Unreadable in the Serial Console 45
6.25 VLAN MTU is Not Set To Base Port Default When DHCP Configuration Fails 45
6.26 Use the Hide Message and Log Message Tools To Hide Sensitive Information When Sending VM Messages 45
6.27 (x86 Only) UEFI Mode Not Supported for Oracle VM Server 46
6.28 (x86 Only) Oracle VM Server Does Not Boot if Installed on a Multipath SAN Disk Greater Than 2.2 TB in Size 46
6.29 (x86 Only) Oracle VM Server Installer Goes To Black Screen After Running `/sbin/loader` 46
6.30 (x86 Only) Oracle VM Server Installer Hangs Waiting for Hardware to Initialize 46
6.31 (x86 Only) Oracle VM Server Installer Hangs Examining Storage Devices For Large Number of LUNS 46
6.32 (x86 Only) Benign Error Message During Install: HDIO_GET_IDENTITY failed 47
6.33 (x86 Only) Oracle VM Server Upgrade From CDROM Not Supported For Releases Prior to 3.3 47
6.34 (x86 Only) Oracle VM Server Upgrade From ULN or Oracle Public Yum Repositories is Restricted to Servers That Do Not Use Non-Native Packages 47
6.35 (x86 Only) Many ISCSI or Fibre Channel LUNs Require More Server Memory 47
6.36 Unable to Edit Virtual IP Field After A Server Pool is Created 48
6.37 Clustered Server Pools in Mixed Platform Environments Require NFS Access Groups To Be Configured 48
6.38 Server Kill Failure Leaves A Server In Stopping State 48
6.39 (SPARC Only) Cluster Recovery May Fail When Using NFSv3 For Server Pool File System 49
6.40 (x86 Only) Server BIOS Settings 49
6.41 (x86 Only) Oracle VM Server Does Not Support `crashkernel=auto` Boot Parameter 49
6.42 Kdump Core Collector Using Sparse Copy Fails 49
6.43 Kdump Over Network Using a XEN Bridged Interface Fails 50
6.44 Kdump Fails if Dump Location Changes 50
6.45 Kdump Out of Memory For Servers With more than 1 TB of Memory 50
6.46 Kdump Kernel Hangs Inserting the megaraid_sas Module 51
6.47 (x86 Only) Oracle VM Server Installation Fails on EUFI Partitioned Disk 51
6.48 (x86 Only) Oracle VM Server Installation on Sun Fire X4800 51
6.49 (x86 Only) Installation of Oracle VM Server on some HP Server Hardware May Fail if Tape Drive is Attached 51
6.50 (x86 Only) Wake On Lan (WOL) Fails if Oracle VM Servers on Different Subnets 51
6.51 (x86 Only) Inconsistent Master Role Assignment after Cluster Failure 52
6.52 (x86 Only) Sun Fire X4170 Server Not Fenced During Cluster Failure 52
6.53 (x86 Only) Netconsole Error During Oracle VM Server Start-up, *Unknown Error 524* 52
6.54 (x86 Only) ACPI Buffer Error After Installing Oracle VM Server 53
6.55 (x86 Only) Radeon Ring Test Failed Error On Boot Resulting in Disabled GPU Acceleration 53
6.56 NVMe Devices Not Supported 53
6.57 DPM Fails To Power On Server When Threshold Reached 54
6.58 Failed Server Evacuation Defined in DPM Policy Generates User Acknowledgeable Event 54
6.59 Take Ownership of Oracle VM Server Fails with OVMRU_000009E Server Message 54
6.60 (SPARC Only) Uninstall of Oracle VM Agent on an Oracle VM Server in a Clustered Server Pool Fails To Unconfigure Cluster 54
6.61 Oracle Linux 7 and RedHat Enterprise Linux 7 Not Supported For PV Guests 55
6.62 (SPARC Only) Serial Console Hangs During Installation of Oracle Solaris 11 on Virtual Machine 55

6.63 Editing Virtual Machine Configuration File Results in Unexpected Behavior 55
6.64 Concurrent Template Operations May Fail Due to Lock Issue 56
6.65 (SPARC Only) Wrong Error Message Returned When Importing A Template From An Incorrect URL 56
6.66 Live Migration Fails but Oracle VM Manager Reports Running Virtual Machine on Target Oracle VM Server 56
6.67 (x86 Only) Virtual Machine Fails to Restart On Another Server in the Cluster if ACPI is Enabled 56
6.68 (x86 Only) Oracle Solaris 10 Virtual Machine May Hang During Shutdown 57
6.69 (x86 Only) Virtual Machine Created with Network (PXE) Installation Does Proceed Beyond Pre Boot 57
6.70 (x86 Only) Hardware Requirements for Hardware Virtualized Guests 57
6.71 (x86 Only) Maximum Memory to Start a PVM Guest is 470 GB 57
6.72 (x86 Only) 1 GB Huge Page Support On HVM Fails, 2 MB Pages Are Created Instead 57
6.73 (x86 Only) Creating a PVM Guest Slow Using Local Storage 58
6.74 (x86 Only) Virtual CDROM in PVHVM Guests not Initialized as IDE Device 58
6.75 (x86 Only) Live Migration of a VM may be Affected by Guest Linux Kernel Version 58
6.76 (x86 Only) Limitations for Hot-Changing Number of Virtual CPUs 58
6.77 (x86 Only) Improving Mouse Pointer Control in Virtual Machine Console 59
6.78 (x86 Only) Solaris 10 Kernel Panic on Some AMD Systems 59
6.79 (x86 Only) Solaris 10 Release 8/11 Guest Hangs at Boot 60
6.80 (x86 Only) Solaris 11 Guest With More Than 2 VCPUs Hangs at Boot 60
6.81 (x86 Only) Solaris 11 Release 2011.11 Guest Hangs at Boot 61
6.82 (x86 Only) Windows Server 2008 R2 x64 HVM Guests do Not Cleanly Shut Down 61
6.83 (SPARC Only) Memory Size Mismatch Between Virtual Machine and Oracle VM Manager After a Hot Add or Remove 62
6.84 (SPARC Only) Need Actual Available Memory for Live Migration 62
6.85 (x86 Only) Changing VM Type and Disabling Huge Pages at the Same Time Fails 62
6.86 (x86 Only) Network Card Limit in Virtual Machines 62
6.87 (x86 Only) QLogic QLE8242 CNA Card is Not Supported On Oracle VM Server 62
6.88 QLogic cLOM8214 1/10 Gigabit Ethernet NIC Initializes with Link State Down 63
6.89 Renaming of QLogic cLOM8214 1/10 Gigabit Ethernet NIC is Incorrect 63
6.90 (x86 Only) TPA disabled for Broadcom 10 Gigabit Ethernet 63
6.91 (x86 Only) Broadcom BCM5754 Gigabit Ethernet Does Not Support Jumbo Frames 64
6.92 (x86 Only) Incorrect ARP Reply When Using Jumbo Frames 64
6.93 (x86 Only) ARP Packet Checksum Errors 64
6.94 (x86 Only) Changing Cluster Heartbeat Network Does Not Reflect New IP Address 64
6.95 NFSv4 Read/Write Delegation Not Supported 65
6.96 (x86 Only) Unclean File System Causes Errors When Used as a Server Pool File System 65
6.97 (SPARC Only) Agent Fails to Reconcile Multipath LUNS If Solaris I/O Multipathing is Disabled 65
6.98 (x86 Only) Size of New LUN on Server is Incorrect If an Existing LUN Is Unmapped First 65
6.99 (x86 Only) Remapping LUNs Causes Storage Refresh To Hang 66
6.100 Refresh Servers Should Only Be Used For Non-Uniform Exports 66
6.101 (x86 Only) LUNs Must Be Cleaned Prior to Storage Repository Creation 66
6.102 NetApp ONTAP (8.2 c-mode) Operating System Does Not Work With Oracle VM 67
6.103 (x86 Only) Black Listing of System Disks for Legacy LSI MegaRAID Controllers Not Supported 67
6.104 (x86 Only) Blacklisting of System Disks for Multipathing Fails on HP Smart Array (CCISS) Disk Devices 67
6.105 (x86 Only) HP Smart Array CCISS Disk Devices Are Not Supported For Creation of Local Storage Repositories 68
6.106 Multi-homed NFS Shares Are Not Supported 68

6.107 (x86 Only) Multipath SAN Boot with Single Path Causes Kernel Panic or File System to be Read-Only 68
6.108 (x86 Only) Multiple Paths Used in Multipath Environments on Oracle Pillar Axiom Storage 69
6.109 Refreshing a NAS-based File System Produces Invalid/Overlapping Exports 69
6.110 (x86 Only) SAS Disks Only Supported in Local Configuration 69
6.111 Errors Occur when Storage Plug-in Versions Do Not Match Oracle VM Server Version 70
6.112 (x86 Only) Shared OCFS2 Cluster File System on Virtual Disk Not Supported 71
6.113 Virtual Disk Images Must Be Properly Aligned To The OCFS2 Block Size For Performance 71
6.114 Oracle VM Manager Command Line Interface Backspace Key 71
6.115 Oracle VM Manager Command Line Interface `create repositoryexport` Command Offers Non-Configurable Option 72
6.116 Oracle VM Manager Command Line Interface `create vmclonestorageMapping` Allows THIN_CLONE cloneType On NFS 72
6.117 No Default Value Set For Access Port When Using `create storagearray` 73
6.118 During Upgrade Other Users Must Not Be Logged Into the Oracle VM Manager Host 73
6.119 Temporary Files Must Be Manually Deleted After Upgrade of Oracle VM Manager 73
6.120 Jobs and Some Events Are Not Inherited After Upgrade 73
6.121 The P2V Conversion Utility is Not Available on the Oracle VM Server ISO 74
6.122 Unicode is Not Supported in Assemblies 74
6.123 XML Tags in Object Names and Description Cause Errors When Using the REST WS-API With XML 74
6.124 Untagged VLAN Interface Missing After Upgrade of Oracle VM Manager 74

Preface

Table of Contents

1 Audience vii
2 Related Documents vii
3 Command Syntax viii
4 Conventions viii

The *Oracle VM Release Notes* contain information on Oracle VM Release 3.3 and supersedes the product documentation. This document contains last-minute information that could not be included the Oracle VM documentation. Read this document before installing Oracle VM. This document may be updated after it is released. To check for updates to this document, and to view other Oracle documentation, refer to the Documentation section on the Oracle Technology Network (OTN) Web site:

http://www.oracle.com/technology/documentation/

The release notes provided for each subsequent release of Oracle VM are published as individual documents at the time that the release is made available. You should check that you are referring the correct document for the release that you are interested in. The release notes for each of the Oracle VM 3.3.*x* releases is available at:

http://download.oracle.com/docs/cd/E50245_01http://download.oracle.com/docs/cd/E50245_01

This document is intended for users, and administrators of Oracle VM. It includes describes potential issues and the corresponding workarounds you may encounter while using Oracle VM.

Oracle recommends that you read this document before installing and using Oracle VM.

1 Audience

This document is intended for Oracle VM administrators with privileged access to the physical and virtual resources of the Oracle VM environment. This guide assumes that you have an in depth knowledge of Oracle VM (see the *Oracle VM Manager User's Guide*), and that you are familiar with Oracle Linux system administration and Linux command line operation.

2 Related Documents

For more information, see the following documents in the Oracle VM documentation set:

- *Oracle VM Release Notes*
- *Oracle VM Installation and Upgrade Guide*
- *Oracle VM Concepts Guide*
- *Oracle VM Manager Getting Started Guide*
- *Oracle VM Manager User's Guide*
- *Oracle VM Manager Command Line Interface User's Guide*
- *Oracle VM Administrator's Guide*

- *Oracle VM Windows Paravirtual Drivers Installation Guide*
- *Oracle VM Web Services API Developer's Guide*
- *Oracle VM Security Guide*
- *Oracle VM Licensing Information User Manual*

You can also get the latest information on Oracle VM by going to the Oracle VM Web site:

http://www.oracle.com/us/technologies/virtualization/oraclevm

3 Command Syntax

Oracle Linux command syntax appears in `monospace` font. The dollar character ($), number sign (#), or percent character (%) are Oracle Linux command prompts. Do not enter them as part of the command. The following command syntax conventions are used in this guide:

Convention	Description

backslash \	A backslash is the Oracle Linux command continuation character. It is used in command examples that are too long to fit on a single line. Enter the command as displayed (with a backslash) or enter it on a single line without a backslash:
	`dd if=/dev/rdsk/c0t1d0s6 of=/dev/rst0 bs=10b \`
	`count=10000`

braces { }	Braces indicate required items: `.DEFINE {macro1}`
brackets [ ]	Brackets indicate optional items: `cvtcrt termname [outfile]`
ellipses ...	Ellipses indicate an arbitrary number of similar items: `CHKVAL fieldname value1 value2 ... valueN`
italics	Italic type indicates a variable. Substitute a value for the variable: *`library_name`*
vertical line |	A vertical line indicates a choice within braces or brackets: `FILE filesize [K|M]`
forward slash /	A forward slash is used as an escape character in the Oracle VM Manager Command Line Interface to escape the special characters `"`, `'`, `?`, `\`, `/`, `<`, `>`. Special characters need only be escaped when within single or double quotes: `create Tag name=MyTag description="HR/'s VMs"`

4 Conventions

The following text conventions are used in this document:

Convention	Meaning
boldface	Boldface type indicates graphical user interface elements associated with an action, or terms defined in text or the glossary.

Convention	Meaning
italic	Italic type indicates book titles, emphasis, or placeholder variables for which you supply particular values.
`monospace`	Monospace type indicates commands within a paragraph, URLs, code in examples, text that appears on the screen, or text that you enter.

Chapter 1 Introduction

Table of Contents

1.1 Upgrading Oracle VM 1
1.2 Oracle VM Storage Connect plug-ins 2
1.3 Using Oracle VM Server for SPARC with Oracle VM Manager 2

Oracle VM is a platform that provides a fully equipped environment for better leveraging the benefits of virtualization technology. Oracle VM enables you to deploy operating systems and application software within a supported virtualization environment. The components of Oracle VM are as follows:

Oracle VM Server for x86

Oracle VM Server for x86 (Oracle VM Server) is a self-contained virtualization environment designed to provide a lightweight, secure, server-based platform to run virtual machines on x86 hardware. Oracle VM Server is based upon an updated version of the underlying Xen hypervisor technology, and includes Oracle VM Agent. It also includes a Linux kernel with support for a broad array of devices and file systems. The Linux kernel is run as Dom0 to manage one or more DomU virtual machines, each of which could be Linux, Oracle Solaris, or Microsoft Windows.

Oracle VM Server for SPARC

Oracle VM Server for SPARC (previously called Sun Logical Domains, or LDoms) is Oracle's server virtualization and partitioning technology on SPARC servers. Oracle VM Server for SPARC leverages the SPARC hypervisor to subdivide supported platforms' resources (CPUs, memory, I/O, and storage) by creating logical domains, also called virtual machines, to take advantage of the massive thread scale offered by SPARC servers and the Oracle Solaris operating system.

Oracle VM Manager

Oracle VM Manager is a server side component that allows you to configure and manage your Oracle VM environment. Oracle VM Manager includes both a command line interface and a web-based user interface, which is a standard Application Development Framework (ADF) web application. Oracle VM Manager provides virtual machine management facilities, including creating virtual machines from installation media or from templates. It provides features such as power on, power off, deleting, importing, deploying, and live migration of virtual machines. Oracle VM Manager also manages resources, including ISO files, virtual machine templates, and shared virtual disks.

This document sets out to describe items of interest and relevance to the current release of Oracle VM. The release notes provided for each subsequent release of Oracle VM are published as individual documents at the time that the release is made available. You should check that you are referring the correct document for the release that you are interested in. The release notes for each of the Oracle VM 3.3.*x* releases is available at:

http://download.oracle.com/docs/cd/E50245_01

1.1 Upgrading Oracle VM

See the *Oracle VM Installation and Upgrade Guide* for information on upgrading between Oracle VM 3.*x* releases.

You can upgrade Oracle VM between 3.*x* Releases only; for example, upgrading from Oracle VM Release 3.2.1 to 3.3.1. You cannot upgrade from a Release 2.*x* to a Release 3.*x*, however. In this case, you must reinstall Oracle VM Servers and Oracle VM Manager.

Upgrading versions of Oracle VM Manager that are using an Oracle XE database as a back end repository is not supported in this release, as the Oracle XE database is no longer supported under Oracle VM. If you are currently running an Oracle XE database for an existing installation of Oracle VM Manager, you must migrate the Oracle XE database to Oracle SE or Oracle EE before performing an upgrade to Release 3.3.

1.2 Oracle VM Storage Connect plug-ins

The Oracle VM Storage Connect plug-ins supported in Oracle VM Release 3.1 are all fully supported in Release 3.3. Support for iSCSI multipath, which was added in Oracle VM Release 3.2.1, is also fully supported in this release.

1.3 Using Oracle VM Server for SPARC with Oracle VM Manager

This section discusses any limitations when using Oracle VM Server for SPARC and managing those servers in Oracle VM Manager.

There are a number of features that exist in Oracle VM Server for SPARC that cannot be represented in Oracle VM Manager at this time. Those feature are:

- Assigning crypto accelerators to guest domains. This is a feature on SPARC servers prior to the T4 series that required some administrative effort. With the T4 series and later, crypto accelerators are always available without any administrative effort required.
- Whole-core and max-cores constraints, although these can be configured by editing the configuration file named `/etc/ovs-agent/agent.ini` that is used by the Oracle VM Agent for SPARC on each Oracle VM Server.
- Multiple service domains, also known as 'shadow service domains', which are typically used to provide redundancy. Initial support for these has been implemented in the Oracle VM Agent for SPARC.

There are a number of limitations that exist in Oracle VM Manager for server pools that contain Oracle VM Server for SPARC servers. These limitations include the following:

- ISCSI or Fibre Channel storage cannot be used to store a repository or a server pool cluster file system. However, these disks can be used for direct virtual machine assignment. NFS storage should be used if you need to set up a server pool cluster file system. Either NFS, ZFS or a local disk may be used to configure a repository.
- Huge page support on SPARC systems is not controlled by Oracle VM. All the page sizes available on the underlying hardware are always available to the guest virtual machine.
- Virtual machine suspend and resume functionality is not available for virtual machines running in a SPARC-based server pool.
- Support for a secondary service domain, running alongside the primary service domain, has been added to the Oracle VM Agent. This feature allows you to restart the primary service domain without causing any interruption to network or disk I/O for any of your running virtual machines.

Chapter 2 What's New in Oracle VM?

Table of Contents

2.1 What's New in Oracle VM Release 3.3.3? 3
2.2 What's New in Oracle VM Release 3.3.2? 5
2.3 What's New in Oracle VM Release 3.3.1? 11
2.4 What's New in Oracle VM Release 3.2.1? 15
2.5 What's New in Oracle VM Release 3.1.1? 17
2.6 What's New in Oracle VM Release 3.0.3? 18
2.7 What's New in Oracle VM Release 3.0.2? 19

Review the new features and enhancements in each release of Oracle VM.

2.1 What's New in Oracle VM Release 3.3.3?

Oracle VM Release 3.3.3 includes separate patches for Oracle VM Manager, Oracle VM Server, and Oracle VM Agent for SPARC as follows:

- Oracle VM Manager: patch ID `20492250`.
- Oracle VM Server: patch ID `20492240`.
- Oracle VM Agent for SPARC: patch ID `20492222`.

Download the patches from My Oracle Support.

The new features and enhancements in Oracle VM Release 3.3.3 include:

Infrastructure

- **Support for Fibre Channel over Ethernet (FCoE):** Oracle VM now includes drivers to detect Converged Network Adapters (CNA). These drivers make it possible to install Oracle VM Server into an FCoE SAN. (20140781)
- **Maximum vCPU limit:** The maximum vCPU limit of 128 for Oracle VM Server for SPARC is removed in this release. (20576711)
- **Support of Converged Network Adapters**: The Oracle VM Server installer is updated in this release to support more Converged Network Adapters (CNA) such as HP FlexFabric 10Gb 2-port 536FLB Adapter, Broadcom 57840S CNA, etc. (20492419)
- **Updated hwdata package:** The hwdata package has been updated to `hwdata-0.233-11.1.el6.noarch.rpm` to list recently released network adapters. (20854084)
- **Updated OvmClient.jar library:** The corporate signing authority for the `OvmClient.jar` library has been updated. (20488470)
- **Updated virtual machine console packages:** The `ovmcore-console-1.0-42.rpm` package has been added to the Oracle VM Manager Web Interface and is updated on the Oracle VM Manager ISO. (20138989)
- **Oracle VM Server dracut packages:** This release adds the `dracut-fips` package and the `dracut-network` package to the Oracle VM Server ISO. This release also includes updates to the `dracut-004` package and the `dracut-kernel` package. (20829905)

Installation and Upgrades

- **Installer check before upgrading:** As of this release, the Oracle VM Manager installation program now checks for sufficient `/tmp` space before starting an upgrade of Oracle VM. (20347269)
- **Delete running jobs:** The Oracle VM Manager upgrade script now allows you to delete running jobs so that the upgrade can proceed. (20103466)

Networking

- **Support for TCP-based NFS Repository Mounts:** Repositories hosted on an NFS share are mounted using TCP by default, with the option to failback to UDP, in this release. (14692942)
- **Add Python networking package:** This release adds the `python-ipaddr-2.1.9-3.el6.noarch.rpm` package to Oracle VM Server for improved IPv6 support. (20855848)

Performance

- **Improved navigation performance in the Oracle VM Manager Web Interface:** This release provides improved performance when navigating to VLAN information. (20814204)
- **Quicker response times in the Oracle VM Manager Web Interface Health tab:** This release provides improved performance when navigating through the **Health** tab. (20963394)
- **Retrieving available servers for virtual machines:** This release improves the time it takes to retrieve a list of available servers for virtual machines. (20982855)
- **Improved performance when expanding tree nodes in the Oracle VM Manager Web Interface:** This release provides improved performance when expanding a tree node that contains a large number of servers. (20305165)

Security

- **Oracle MySQL patch update:** This release of Oracle VM includes the April 2015 Critical Patch Update for MySQL. (20916257)
- **Oracle WebLogic patch update:** This release of Oracle VM includes the April 2015 Critical Patch Update for WebLogic. (20918659)
- **Oracle Java patch update:** This release of Oracle VM includes the April 2015 Critical Patch Update for Java. (20918735)
- **UEK3 quarterly update:** This release of Oracle VM includes the UEK3 quarterly update 5. (20594222)
- **Xen security advisories:** The following Xen security advisories are included in this release:
  - XSA-136 (CVE-2015-4164)
  - XSA-134 (CVE-2015-4163)
  - XSA-135 (CVE-2015-3209)

Oracle VM Security Advisories

This release includes the following Oracle VM Security Advisories:

Table 2.1 Oracle VM Security Advisories

Advisory Identifier	Severity	Description
OVMSA-2015-0040	Important	Oracle VM 3.3 kernel-uek security update
OVMSA-2015-0054	Moderate	Oracle VM 3.3 krb5 security update
OVMSA-2015-0055	Moderate	Oracle VM 3.3 glibc security update
OVMSA-2015-0056	Important	Oracle VM 3.3 kernel-uek security update
OVMSA-2015-0057	Critical	Oracle VM 3.3 Xen security update
OVMSA-2015-0060	Important	Oracle VM 3.3 kernel-uek security update
OVMSA-2015-0064	Important	Oracle VM 3.3 Xen security update
OVMSA-2015-0065	Moderate	Oracle VM 3.3 Openssl security update
OVMSA-2015-0067	Important	Oracle VM 3.3 Xen security update
OVMSA-2015-0070	Moderate	Oracle VM 3.3 Openssl security update
OVMSA-2015-0071	Important	Oracle VM 3.3 cups security update
OVMSA-2015-0072	Important	Oracle VM 3.3 kernel-uek security update
OVMSA-2015-0073	Moderate	Oracle VM 3.3 nss security update

2.2 What's New in Oracle VM Release 3.3.2?

Oracle VM Release 3.3.2 includes separate patches for Oracle VM Manager, Oracle VM Server, and Oracle VM Agent for SPARC as follows:

- Oracle VM Manager: patch ID `20492250`.
- Oracle VM Server: patch ID `20492240`.
- Oracle VM Agent for SPARC: patch ID `20492222`.

Download the patches from My Oracle Support.

The new features and enhancements in Oracle VM Release 3.3.2 include:

Performance

- **Performance Monitoring:** This release adds support for Oracle VM performance monitoring. (19707131)
- **Caching Job States:** Oracle VM Manager Web Interface now caches the states of jobs to improve performance. (19903847)
- **CPU Load of the MySQL Process:** Several performance improvements have been implemented to lower the CPU load of the MySQL process. (19563329)
- **Looking Up Objects by Name:** Oracle VM Manager Web Interface provides improved performance when looking up an object based on its name. (19482992)
- **Method Call Improvement:** Improves the performance of the `OvmWsClient.getWsUtilities()` Oracle VM Web Services API call. (19402315)
- **Virtual Machine Shutdown Time:** Virtual machines now shut down faster, especially for virtual machines with a large amount of memory. (18489484)

Usability

- **Expanding Server Lists:** Oracle VM Manager Web Interface is now more responsive and quicker when expanding lists of Oracle VM Servers. (19879474 and 19385050)
- **Scrolling through Large Tables:** Oracle VM Manager Web Interface provides improved performance when scrolling through large tables such as the **Unassigned Virtual Machines** folder. (19879459)
- **Searching for Jobs:** Oracle VM Manager Web Interface now provides results quicker when searching for jobs. (19590118)
- **Querying Statistics:** Oracle VM Manager Web Interface provides improved performance when querying Oracle VM Manager statistics. (19563481)
- **Servers and VMs Tab Displays as Default:** The **Servers and VMs** tab now displays when opening the Oracle VM Manager Web Interface. (19429440)
- **Opening Menu with Right Mouse Button:** Oracle VM Manager Web Interface provides improved performance when opening context menus with the right mouse button. (19402302)
- **Prevent VNIC Changes for Running Virtual Machines:** Oracle VM now includes a rule to prevent virtual network interface card (VNIC) changes in the network while virtual machines are running. (19644535)

Installation and Upgrades

- **Ugrade Support:** This release adds support to upgrade from Oracle VM Release 3.2.9 to Oracle VM Release 3.3.2. (20122857)
- **Discover Servers After Upgrade:** This release adds support to discover Oracle VM Release 3.2 Servers after upgrading to Oracle VM Release 3.3. (19958455)
- **Prevent Oracle VM Manager Upgrade with Running Jobs:** Oracle VM now includes a rule to prevent an upgrade of Oracle VM Manager when jobs are still running (19562031)

Infrastructure

- **Updated Virtual Machine Console:** This release includes an updated virtual machine console package, `ovmcore-console-1.0-42`, to the Oracle VM Manager installation ISO. (20138989)
- **Import OVF 2.1 VM Templates:** Oracle VM now provides support for importing Oracle VM Templates that are created according to the OVF 2.1 specification. (19639096)
- **Improved NUMA Support:** Oracle VM provides improved NUMA support for PCI devices. (20088513)
- **Xen Command Support:** Adds support for the `-p` option to the xendomains/auto-start feature of Xen. (20087455)
- **Update to the dom0 Kernel:** Updates the dom0 kernel to a newer Oracle Unbreakable Enterprise Kernel Release 3 `3.8.13-55.1.3.el6uek`. (20028783)
- **Update to OpenSSL Package:** This Oracle VM Release includes the latest OpenSSL package. (19933498)
- **Support for Larger Number of Virtual CPUs:** This Oracle VM release adds support for a larger number of virtual CPUs. (19564352)
- **Support for an HP Server:** Oracle VM now supports installing Oracle VM Server on an HP DL580 G8 server. (19295185)

- **Oracle Virtual Networking Package:** This Oracle VM release adds the Oracle Virtual Networking (OVN) user package, `orclovn-user-6.0.r7588-1`, to Oracle VM Server. (19159220)

Security

This release includes the following Oracle VM Security Advisories:

Table 2.2 Oracle VM Security Advisories

Advisory Identifier	Severity	Descript
OVMSA-2015-0022	Critical	Oracle VM 3.3 glibc security update
OVMSA-2014-0018	Critical	Oracle VM 3.3 bash security update
OVMSA-2015-0026	Important	Oracle VM 3.3 xen security update
OVMSA-2014-0014	Important	Oracle VM 3.3 nss security update
OVMSA-2014-0015	Important	Oracle VM 3.3 nss-util security update
OVMSA-2014-0012	Important	Oracle VM 3.3 openssl security update
OVMSA-2014-0023	Important	Oracle VM 3.3 nss

Advisory Identifier	Severity	Description
		security update
OVMSA-2014-0021	Important	Oracle VM 3.3 bash security update
OVMSA-2014-0017	Important	Oracle VM 3.3 glibc security update
OVMSA-2014-0025	Important	Oracle VM 3.3 xen security update
OVMSA-2014-0080	Important	Oracle VM 3.3 libXfont security update
OVMSA-2014-0032	Important	Oracle VM 3.3 openssl security update
OVMSA-2014-0038	Important	Oracle VM 3.3 xen security update
OVMSA-2015-0031	Important	Oracle VM 3.3 xen security update
OVMSA-2015-0034	Important	Oracle VM 3.3 kernel-uek

Advisory Identifier	Severity	Descript
		security update
OVMSA-2015-0036	Important	Oracle VM 3.3 freetype security update
OVMSA-2014-0087	Important	Oracle VM 3.3 jasper security update
OVMSA-2015-0004	Important	Oracle VM 3.3 xen security update
OVMSA-2015-0006	Important	Oracle VM 3.3 jasper security update
OVMSA-2014-0083	Important	Oracle VM 3.3 rpm security update
OVMSA-2014-0082	Important	Oracle VM 3.3 nss security update
OVMSA-2014-0085	Important	Oracle VM 3.3 ntp security update
OVMSA-2014-0084	Important	Oracle VM 3.3 bind

Advisory Identifier	Severity	Description
		security update
OVMSA-2015-0003	Moderate	Oracle VM 3.3 glibc security update
OVMSA-2015-0033	Moderate	Oracle VM 3.3 bind security update
OVMSA-2015-0037	Moderate	Oracle VM 3.3 unzip security update
OVMSA-2015-0039	Moderate	Oracle VM 3.3 openssl security update
OVMSA-2015-0005	Moderate	Oracle VM 3.3 openssl security update
OVMSA-2014-0086	Moderate	Oracle VM 3.3 mailx security update
OVMSA-2014-0033	Moderate	Oracle VM 3.3 glibc security update
OVMSA-2014-0031	Moderate	Oracle VM 3.3 libxml2

Advisory Identifier	Severity	Descript
		security update
OVMSA-2014-0036	Moderate	Oracle VM 3.3 wget security update
OVMSA-2014-0030	Moderate	Oracle VM 3.3 rsyslog security update
OVMSA-2014-0034	Moderate	Oracle VM 3.3 krb5 security update
OVMSA-2014-0035	Moderate	Oracle VM 3.3 cups security update

2.3 What's New in Oracle VM Release 3.3.1?

The new features and enhancements in Oracle VM Release 3.3.1 include:

Programmability

- **Fully Supported Web Services API:** Oracle VM Manager now exposes a fully supported Oracle VM Web Services API that offers both SOAP and REST interfaces to program any action supported within Oracle VM. See the *Oracle VM Web Services API Developer's Guide* for more information.

Performance

- **New Statistics and Events model:** The statistics and events model has been entirely rewritten to offer significant performance gains. A queued job task is in place to monitor the number of generated statistics and to adjust the threshold automatically during periods where the number of statistics exceeds the threshold.
- **Oracle VM Server Notification Thresholding:** Oracle VM Server notifications can increase the number of generated events and jobs impacting on performance and filling log files to make them unusable. A facility has been provided to control and limit the number of notifications that an Oracle VM Server can generate by setting notification thresholds.
- **Huge Page Support:** Support for Huge Pages (or Super Pages) has been added to allow guests, hosted on an x86-based server pool, to take advantage of this functionality to improve performance and

reduce the I/O that results from page lookups in virtualized environments. See Create Virtual Machine in the *Oracle VM Manager User's Guide* for more information on Huge Page support.

- **Improvements to Guest VM Messaging:** A change to the Oracle VM Guest Additions messaging facility to support multiple key-value pairs in a single message reduces the number of jobs generated within Oracle VM Manager, resulting in significant performance gains. See Sending Messages to Virtual Machines in the *Oracle VM Concepts Guide* for more information on guest virtual machine messaging.
- **Other Code Changes:** Various portions of the code-base have been rewritten to enhance performance in environments that have been scaled up to make use of many disks, storage repositories, Oracle VM Servers or virtual machines.

Security

- **Service Consolidation:** The number of required ports open in a deployment, and the mechanisms that are used for components to communicate have been reduced through the consolidation of various services and the global use of the Oracle VM Web Services API. These changes reduce the number of potential attack vectors available to malicious users. See the *Oracle VM Security Guide* for more information.
- **Certificate-based Authentication:** The Oracle VM Agent now uses SSL certificates to authenticate requests from Oracle VM Manager when an Oracle VM Server is discovered. This reduces the possibility that a malicious user can perform a brute-force dictionary attack to authenticate against an Oracle VM Server that is under the ownership of an Oracle VM Manager instance. Furthermore, certificate-based authentication can be used for all Oracle VM Web Services API requests, to ease automation while retaining a better security model for authentication. See Setting up SSL on Oracle VM Manager in the *Oracle VM Security Guide* for more information on SSL in Oracle VM.

Usability and Serviceability

- **New Virtual Machine Console:** The virtual machine console has been redesigned to use JavaScript and HTML5 features. There is no longer any requirement to install or run software locally on the client computer. The new console runs within the web-browser, and only requires that the browser is capable of supporting the technologies used. Most modern browsers are supported. This change reduces complexity and provides a more reliable console tool. See Accessing the Virtual Machine Console in the *Oracle VM Concepts Guide* for more information on the virtual machine console.
- **Virtual Machine Configuration File View:** It is now possible to view the virtual machine configuration file for any virtual machine directly within the Oracle VM Manager Web Interface and Oracle VM Manager Command Line Interface, to provide more transparency for the configuration that is actually applied to a virtual machine when it is started by the hypervisor. See View Virtual Machine Configuration File in the *Oracle VM Manager User's Guide* for more information on viewing the virtual machine configuration file.
- **Stack Trace Removal:** The Oracle VM Manager Command Line Interface no longer has stack trace information in job error messages. This makes it easier to read the more useful content of error messages.
- **Job Details Improvements:** The Oracle VM Manager Web Interface job details view (displayed by clicking the **Details** button in the **Job Summary** pane) has been improved with more appropriate information, and stack trace information has been removed. The job stack trace information is still available, but has been moved to to the **Jobs** view. See Job Details in the *Oracle VM Manager User's Guide* for more information on job details.

Reliability

- **Database Consolidation:** Only the bundled Oracle MySQL Enterprise database is supported as a back end repository for the Oracle VM Manager. Removal of support for other Oracle Database types allows Oracle VM Manager to have more control over regular automated database backup, support for database consistency checking tools, and other facilities required to improve reliability and performance. Furthermore, by limiting support to the bundled database, it is possible to improve troubleshooting documentation and tools.
- **Database Object Consistency Checking:** Tools are now in place to check the status of objects stored within the database, along with their relationships and references. These tools can assist in tuning the database and can help resolve potential database issues. Consistency checks are performed alongside the automated backup facility.
- **Inbound Migration Lock:** A new feature allows you to protect an Oracle VM Server from attempts to move or migrate other virtual machines to that server. This allows you to run selected virtual machines on a specified Oracle VM Server, and to be certain that no other virtual machines are started on the server, consuming resources that may be mission critical for some applications. See How Can I Protect Virtual Machines? in the *Oracle VM Concepts Guide* for more information.

Networking

- **Addition of Network Bridges and Virtual Switches to Model:** The Oracle VM Manager core model has been updated to provide better representation of network bridge and virtual switch objects as they exist on each Oracle VM Server. This helps to resolve issues where bridges or virtual switches have been created manually on an Oracle VM Server, and provides the mechanism to develop tools to better handle bridge and virtual switch configuration. See Understanding Networks in the *Oracle VM Concepts Guide* for information on network architecture.
- **Improved VLAN Support:** VLAN support has been completely restructured. The previous model, which involved configuring VLAN Groups and VLAN Segments, was inflexible, confusing, and could sometimes impact on the Management Network. VLAN support has been simplified, and introduces the concept of a VLAN Interface, allowing you to simply define which ports are used for which VLAN tags. You can define VLAN Interfaces as you need them and many of the restrictions on using VLANs have been removed. See How are VLANs Used in Oracle VM? in the *Oracle VM Concepts Guide* for information on VLANs.
- **Added Support for HTTP Proxies:** Oracle VM Manager now has added support to define an HTTP proxy to use when importing an assembly, virtual disk, or virtual CDROM. This change expands on the ability to define a proxy when importing a template or virtual machine.

SPARC Support

- **Support for iSCSI, Fibre Channel, ZFS and Local Disk for Virtual Machine Assignment:** iSCSI and Fibre Channel disks can now be discovered for SPARC systems, and can be directly assigned to virtual machines running in a SPARC server pool. Configuring storage repositories on these disks is currently not supported. Local disks, ZFS volumes and NFS exports can be discovered on SPARC systems and can be used for repositories, or can be assigned for use by any virtual machine running on the same server.
- **Package Management and SPARC Upgrades:** Added support for package management within the Oracle VM Agent has made it possible to manage future SPARC server upgrades directly from Oracle VM Manager. Changes to the upgrade tools within Oracle VM Manager allow you to define Server Update Groups where you can specify the IPS repository that should be used to perform future upgrades. See Create Server Update Repositories in Oracle VM Manager in the *Oracle VM Installation and Upgrade Guide* for information on creating Server Update Groups for SPARC.

- **Support for HA Virtual Machines:** Virtual machines running in a SPARC server pool can now be configured for high availability if the storage for the server pool is using an NFS file system. See How does High Availability (HA) Work? in the *Oracle VM Concepts Guide* for information on high availability.
- **Improved Network Support:** The following network functionality is now supported on Oracle VM Server for SPARC systems:
  - Active-Backup network bonding.
  - VLAN integration.
  - Jumbo Frames and MTU configuration on network port and bond configuration.

Installation and Upgrades

- **Oracle VM Server Installation Partitioning:** The Oracle VM Server Installer now handles all disk partitioning itself, to optimize installation. Part of this process make sure that only the maximum required disk space for the Oracle VM Server software is used. Any remaining disk space is automatically partitioned to be used as a discoverable local disk that can be used to host a storage repository, or attached to a virtual machine hosted on the server. This improvement to disk space usage ensures the best possible use of machine resources. This change is only supported for locally hosted boot disks and does not apply to SAN disks.

Documentation

- **New Guides and Improved Interface Coverage:** The documentation has been restructured to provide more comprehensive coverage. The *Oracle VM Manager User's Guide* has been structured to map more directly onto the Oracle VM Manager Web Interface, to make it easier to find information in the context of user interface related items. A new guide, the *Oracle VM Concepts Guide*, has been created to cover more conceptual information, and to answer many more generic questions about the architecture and configuration of an Oracle VM deployment. The previously named *Oracle VM Utilities Guide* has been replaced with the *Oracle VM Administrator's Guide*, which provides broader coverage of all items relating to the underlying administration of an Oracle VM deployment, including handling backups, configuring SSL certificate,s and general troubleshooting. A new *Oracle VM Web Services API Developer's Guide* has been created to provide some general guidelines, and an introduction to programming against the Oracle VM Web Services API.

Infrastructure

- **Infrastructure Changes in Oracle VM Manager:** Much of the technology used to enable Oracle VM Manager has been updated to take advantage of new features, improved performance and security fixes. Major changes to these components include:
  - Oracle WebLogic Server upgraded to 12*c*.
  - Java upgraded to version 7.
  - MySQL Database upgraded to version 5.6.

  The Oracle VM Manager Web Interface and the Oracle VM Manager Command Line Interface have been rewritten to use the new Oracle VM Web Services API to provide further consolidation.
- **Infrastructure Changes in Oracle VM Server:** Major changes to the underlying technology used for Oracle VM Server on x86 hardware have been implemented, including:
  - Xen hypervisor upgraded to version 4.3.

- Dom0 kernel upgraded to Oracle Linux 6.
- Linux kernel (used in dom0) updated to Oracle Unbreakable Enterprise Kernel 3 (UEK3).

2.4 What's New in Oracle VM Release 3.2.1?

The new features and enhancements in Oracle VM Release 3.2 include:

Performance, Scalability and Security

- **Support for Oracle VM Server for SPARC:** Oracle VM Manager can now be used to discover SPARC servers running Oracle VM Server for SPARC, and perform virtual machine management tasks.
- **New Dom0 Kernel in Oracle VM Server for x86:** The Dom0 kernel in Oracle VM Server for x86 has been updated so that it is now the same Oracle Unbreakable Enterprise Kernel 2 (UEK2) as used in Oracle Linux, for complete binary compatibility with drivers supported in Oracle Linux. Due to the specialized nature of the Oracle VM Dom0 environment (as opposed to the more general purpose Oracle Linux environment) some Linux drivers may not be appropriate to support in the context of Oracle VM, even if the driver is fully compatible with the UEK2 kernel in Oracle Linux. Do not install any additional drivers unless directed to do so by Oracle Support Services.

Installation

- **MySQL Database Support:** MySQL Database is used as the bundled database for the Oracle VM Manager management repository for simple Installations. Support for an existing Oracle SE/EE Database is still included within the installer so that you can perform a custom installation to take advantage of your existing infrastructure. Simple Installation using the bundled MySQL Database is fully supported within production environments.
- **Discontinued inclusion of Oracle XE Databases:** Oracle VM Manager no longer bundles the Oracle XE database as a back end database. If you are currently running Oracle VM Manager using Oracle XE and you intend to upgrade you must first migrate your database to Oracle SE or Oracle EE.
- **Oracle VM Server Support Tools:** A meta-package is provided on the Oracle VM Server ISO enabling you to install packages to assist with support. These packages are not installed automatically as they are Oracle VM Server does not depend on them. Installation of the meta-package and its dependencies may assist with the resolution of support queries and can be installed at your own discretion. Note that the `sudo` package was previously installed as a dependency for Oracle VM Server, but that this package has now been made a dependency of the `ovs-support-tools` meta-package. If you require `sudo` on your Oracle VM Server installations, you should install the `ovs-support-tools` meta-package.

Usability

- **Oracle VM Manager Command Line Interface (CLI):** The new Oracle VM Manager Command Line Interface can be used to perform the same functions as the Oracle VM Manager Web Interface, such as managing all your server pools, servers and guests. The CLI commands can be scripted and run in conjunction with the Web Interface, thus bringing more flexibility to help you deploy and manage an Oracle VM environment. The CLI supports public-key authentication, allowing users to write scripts without embedding passwords, to facilitate secure remote login to Oracle VM Manager. The CLI also includes a full audit log for all commands executed using the facility. See the *Oracle VM Manager Command Line Interface User's Guide* for information on using the CLI.
- **Accessibility options:** Options to display the UI in a more accessible way for screen readers, improve the contrast, or increase the font size. See Oracle VM Manager Accessibility Features in the *Oracle VM Manager User's Guide* for more information.

- **Health tab:** Monitor the overall health and status of your virtualization environment and view historical statistics such as memory and CPU usage. See Health Tab in the *Oracle VM Manager User's Guide* for information on using the **Health** tab.
- **Multi-select of objects:** Select one or more objects to perform an action on multiple objects, for example, upgrading multiple Oracle VM Servers in one step, rather than upgrading them individually. See Multi-Select Functionality in the *Oracle VM Manager User's Guide* for information on using the multi-select feature.
- **Search for objects:** In many of the tab management panes and in some of the dialog boxes you can search for objects. This is of particular benefit to large deployments with many objects such as virtual machines or Oracle VM Servers. See Name Filters in the *Oracle VM Manager User's Guide* for information on using the search feature.
- **Tagging of objects:** It is now possible to tag virtual machines, servers and server pool objects within Oracle VM Manager to create logical groupings of items, making it easier to search for objects by tag.
- **Alphabetized tables and other UI listings:** Items listed in tables and other UI listings are now sorted alphabetically within Oracle VM Manager by default, to make it easier to find objects in larger deployments.
- **Present repository to server pools:** In addition to presenting a storage repository to individual Oracle VM Servers, you can now present a repository to all Oracle VM Servers in one or more server pools. See Present or Unpresent Repository in the *Oracle VM Manager User's Guide* for more information.
- **OCFS2 timeout configuration:** An additional attribute has been added to allow you to determine the timeout in seconds for a cluster when configuring a clustered server pool within Oracle VM Manager.
- **NFS refresh servers and access lists for non-uniform exports:** For NFS configurations where different server pools are exposed to different exports, it is now possible to configure non-uniform exports and access lists to control how server pool refreshes are performed. For more information on this feature, see Access Groups Perspective in the *Oracle VM Manager User's Guide*.
- **Configure multiple iSCSI access hosts:** You can now configure multiple access hosts for iSCSI storage devices
- **Sizes of disks, ISOs and vdisks:** Oracle VM Manager now shows the sizes of disks, ISOs and vdisks within the virtual machine edit dialog, to make it easier to select a disk.
- **Automated backups and easy restore:** Oracle VM Manager installations taking advantage of the bundled MySQL Enterprise Edition Database include fully automated database backups and a quick restore tool that can help with easy database restoration.
- **Serial console access:** A serial console java applet has been included within Oracle VM Manager to allow serial console access to virtual machines running on both SPARC and x86 hardware. This facility complements the existing VNC-based console access to virtual machines running on x86 hardware.
- **Set preferences for recurring jobs:** Facilities have been provided within Oracle VM Manager to control the preferences for recurring jobs. These include the ability to enable, disable or set the interval for tasks such as refreshing repositories and file systems; and to control the server update repository checking task.
- **Processor Compatibility Groups:** Since virtual machines can only be migrated between servers that use compatible processor types, Oracle VM Manager now provides the ability to define Processor Compatibility Groups to enable you to pick which servers a virtual machine can be migrated between.
- **Configure additional Utility and Virtual Machine roles:** New roles are now supported on Oracle VM Servers to control the type of functionality that the server will be responsible for. The Virtual Machine role

is required in order for an Oracle VM Server to run a virtual machine. Oracle VM Servers configured with the Utility role are favoured for performing operations such as file cloning, importing of templates, the creation of repositories, and other operations not directly related to running a virtual machine.

- **Directly import a virtual machine:** It is now possible to directly import a virtual machine using Oracle VM Manager, no longer requiring that you first import to a template and then clone.
- **Virtual machine start policy:** You can now specify a start policy for a virtual machine, determining whether to always start the virtual machine on the server on which it has been placed, or to start the virtual machine on the best possible server in the server pool.
- **Hot-add a VNIC to a virtual machine:** It is now possible to add a VNIC directly to a running virtual machine from within Oracle VM Manager.
- **Send messages to a virtual machine:** Facilities have been provided within Oracle VM Manager to send messages directly to a virtual machine in the form of key-value pairs.
- **NTP configuration:** Ensuring that time is synchronized across all servers is important. Oracle VM Manager now provides a facility to bulk configure NTP across all servers.

2.5 What's New in Oracle VM Release 3.1.1?

The new features and enhancements in Oracle VM Release 3.1.1 include:

Performance, Scalability and Security

- **Updated Xen Hypervisor:** Xen is updated to Release 4.1.2.
- **New Dom0 Kernel in Oracle VM Server for x86:** The Dom0 kernel is now the same Oracle Unbreakable Enterprise Kernel 2 (UEK2) as used in Oracle Linux, for complete binary compatibility with drivers supported in Oracle Linux. Due to the specialized nature of the Oracle VM Dom0 environment (as opposed to the more general purpose Oracle Linux environment) some Linux drivers may not be appropriate to support in the context of Oracle VM, even if the driver is fully compatible with the UEK2 kernel in Oracle Linux. Do not install any additional drivers unless directed to do so by Oracle Support Services.
- **Jumbo Frames Support:** Fully supports different MTU sizes. See Create Bond Port in the *Oracle VM Manager User's Guide* for information on setting the network MTU size.
- **LUN Resizing:** A LUN (either used as a storage repository or a server pool file system) also resizes the OCFS2 file system.
- **Backup/Restore Access to OCFS2 Storage Repositories:** Present OCFS2 storage repositories as NFS shares to enable access to external tools in order to back up and copy storage repository contents. See Repository Exports Perspective in the *Oracle VM Manager User's Guide* for more information on enabling back ups of storage repositories.
- **Move OCFS2 Repositories Between Server Pools:** Remove an OCFS2 storage repository from one server pool and add it to another. The process of moving a storage repository from one server pool to another has been streamlined to facilitate easier disaster recovery and more storage agility.

Installation

- **Multipath Boot from SAN:** Oracle VM Server can be installed to perform boot from multipath SAN without requiring any type of local storage.

Usability

- **Create Virtual Machine Templates:** Virtual machines can be cloned as templates, templates can be used to create other templates, and a template can be created in a similar way as creating a virtual machine using a wizard. See Clone a Virtual Machine or Template in the *Oracle VM Manager User's Guide* for information on creating virtual machine templates.
- **Move or Clone Virtual Machines and Templates:** Moving or cloning a virtual machine or template (including the configuration information, disk resources, storage and networking). See Clone or Move a Template in the *Oracle VM Manager User's Guide* for more information on moving and cloning virtual machines and templates.
- **Hot Add vCPUs:** Add virtual CPUs on the fly to a running virtual machine. See Edit Virtual Machine in the *Oracle VM Manager User's Guide* for information on editing a virtual machine and adding vCPUs to a running virtual machine.
- **Discover Multiple Oracle VM Servers Using Hostnames and IPs:** Discover Oracle VM Servers by entering or pasting in multiple hostname or IP addresses in a text field, instead of entering each IP address individually. See Discover Servers in the *Oracle VM Manager User's Guide* for information on discovering Oracle VM Servers.
- **Virtual Machine Keyboard Mapping:** Support for keyboard mapping for different languages for each individual virtual machine, not just for the server pool. See Create Virtual Machine in the *Oracle VM Manager User's Guide* for information on the keyboard mapping when creating a virtual machine.
- **Virtual Machine Console:** If the a virtual machine console is in use by another user, you can take over control of the virtual machine console. See Launch Console in the *Oracle VM Manager User's Guide* for information on the virtual machine console.
- **User Interface Enhancements:** Significant user interface enhancements improve ease of use, make work flows more intuitive, and reduce the amount of clicks required to perform tasks. See Using Oracle VM Manager in the *Oracle VM Manager User's Guide* for information on the Oracle VM Manager user interface.
- **Drag and Drop:** Objects can be dragged and dropped in the user interface. See Drag and Drop in the *Oracle VM Manager User's Guide* for information using the drag and drop feature.

2.6 What's New in Oracle VM Release 3.0.3?

The new features and enhancements in Oracle VM Release 3.0.3 include:

Performance, Scalability and Security

- **Anti-Affinity Support:** Define which virtual machines cannot reside on the same Oracle VM Servers. Use this feature to achieve better availability by ensuring that critical resources do not reside on a shared single point of failure. See Anti-Affinity Groups Perspective in the *Oracle VM Manager User's Guide* for information on anti-affinity .
- **Change Oracle VM Agent Password:** The Oracle VM Agent password for all Oracle VM Servers in a server pool can be changed from Oracle VM Manager.

Installation

- **Maintain Oracle VM Manager Identity After Reinstall:** See Installing Oracle VM Manager in the *Oracle VM Installation and Upgrade Guide* for information on how to reinstall Oracle VM Manager and maintain the previous UUID.

Usability

- **User Interface:** Improved wizards to allow smooth operation and closely match operational needs.
- **Virtual Machines:** Explicitly set maximum memory when creating virtual machines. Flexibility to update virtual disk attributes. Choose thick or thin provision. CDROM dynamic update. Virtual machine console does not require username/password. See Understanding Virtual Machines in the *Oracle VM Concepts Guide* for information on these new virtual machine features.
- **Live Migration Assistant:** During live migration, only *allowed* target Oracle VM Servers can be selected in the Live Migration dialog box. An additional section entitled **Why don't I see other servers to migrate to?** shows why migrating to a given server is not possible. Anti-affinity and hardware factors such as CPU family are taken into account.
- **Maximum Guest Memory:** The new **Create Virtual Machine** wizard contains a maximum memory setting. This is the maximum amount of RAM you can configure for the running virtual machine.

2.7 What's New in Oracle VM Release 3.0.2?

The new features and enhancements in Oracle VM Release 3.0.2 include:

Performance, Scalability and Security

- **Updated Xen 4.0 Hypervisor:** More efficient power management capabilities, broader hardware support, and better performance, scalability and security for both hardware virtualized and paravirtualized guests.
- **Updated Dom0 Linux Kernel with Newer Drivers:** Better hardware support for higher performance, with the latest Unbreakable Enterprise Kernel.
- **Improved Scalability:** Capable of supporting Oracle VM Servers with up to 160 CPUs and 2 TB memory.
- **Updated OCFS2 1.8 Cluster File System:** Instant clone support in OCFS2 1.8 enables significantly faster virtual machine provisioning and cloning.
- **Support for OVF:** Use Oracle VM Manager to import a broad range of Open Virtualization Format (OVF) based software assemblies produced by Oracle to accelerate application deployment. See How are Assemblies Managed? in the *Oracle VM Concepts Guide* for information on working with assemblies.

Network and Storage Configuration and Management

- **Network Configuration and Management:** All Oracle VM Server logical network configuration and management is now performed using Oracle VM Manager, for example, NIC port bonding, and configuring VLAN Networks. See Understanding Networks in the *Oracle VM Concepts Guide* for information on network management in Oracle VM Manager.
- **Storage Configuration and Management:** The Oracle VM Storage Connect framework enables Oracle VM Manager to directly access the resources and functionality of existing storage systems, supporting native storage services such as SAN or NFS storage creation, deletion, expansion. This allows Oracle VM Manager to automatically discover available storage and create new storage repositories, or to map raw storage directly to virtual machines. See Storage Tab in the *Oracle VM Manager User's Guide* for information on storage management.

Physical and Virtual Status and Resource Information

- **Resource Information:** Performance statistics are available for CPU, memory, disk and network for each physical Oracle VM Server and virtual machine. Events are displayed for each physical and virtual object, such as port up/down status. IP address and other configuration information is displayed directly in the user interface.

Note

Not all metrics are exposed through the Oracle VM Manager user interface.

Policy-Based Resource Management

- **Distributed Resource Scheduling (DRS) for Capacity Management:** DRS provides real-time monitoring of Oracle VM Server utilization with the goal to rebalance a server pool to provide consistent resources to the running virtual machines. DRS migrates load away from heavily-loaded Oracle VM Servers to less-loaded Oracle VM Servers.
- **Distributed Power Management (DPM) to Optimize Server Pool for Minimum Power Consumption:** DPM complements DRS to reduce the Oracle VM Servers in a server pool when there are periods of low resource utilization. DPM can automatically add capacity as needed when resource utilization increases.

See What are Server Pool Policies? in the *Oracle VM Concepts Guide* for information on using DRS and DPM.

Usability

- **User Interface:** Based on the latest Oracle Application Development Framework (ADF), Oracle VM Manager now includes a fully interactive tree view and automatic refresh to show the real-time state of the physical and virtual environment. See Using Oracle VM Manager in the *Oracle VM Manager User's Guide* for information on using the new user interface.
- **Virtual Machines:** Specify the boot order (for example: disk, CDROM) to simplify installs. Directly attach raw storage or virtual disks (vdisks). See Understanding Virtual Machines in the *Oracle VM Concepts Guide* for information on virtual machines.

Chapter 3 Notable Bug Fixes

Table of Contents

3.1 Bug Fixes in Oracle VM 3.3.3 21
3.2 Bug Fixes in Oracle VM 3.3.2 22
3.3 Bug Fixes in Oracle VM 3.3.1 24
3.4 Bug Fixes in Oracle VM 3.2.1 26
3.5 Bug Fixes in Oracle VM 3.1.1 27
3.6 Bug Fixes in Oracle VM 3.0.3 28

Each Oracle VM release includes bug fixes that improve performance, usability, or resolve significant issues. Because each release contains many bug fixes, it is beyond the scope of this document to provide an exhaustive list of each bug fix. Rather, this chapter highlights the more notable bug fixes in each release.

3.1 Bug Fixes in Oracle VM 3.3.3

The following notable bugs are fixed in Oracle VM Release 3.3.3:

- Disables the transitional YUM repository temporarily during an upgrade to ensure a successful upgrade between Oracle VM Server 3.3.x errata releases. (20330043)
- Fixes an issue in the statistic query builder for the file system. (20364416)
- Fixes a problem with the upgrade script that was causing it to fail after the first step in the process. (20372446)
- Fixes a null pointer exception error with Page83 when attempting to delete a server from a pool or model. (20373362)
- Fixes a problem where resizing existing LUNs did not always work. (20397450)
- Fixes a problem with an SSL handshake exception when adding a customer SSL certificate. (20702236)
- Fixes a server sorting problem in the navigation panel in the Oracle VM Manager Web Interface. (20814532)
- Fixes an issue where the console did not display information about virtual machines after an upgrade. (20828842)
- Fixes an issue where user was not able to register multiple storage arrays. (20958122)
- Fixes an issue that caused autobackup feature to hang. (21123499)
- Fixes an error condition where sometimes after rebooting a virtual machine, an ext4 filesystem error is displayed. (19357800)
- Fixes long server discovery time with a large number of disks on Oracle VM Server for SPARC. (20158892)
- Fixes Discover_Network failure with “no device found for vswitch” message on Oracle VM Server for SPARC. (20593971)
- Disables GRO on new installs when routing/bridging with IXGBE driver. (19514003)

- Fixes an issue with a VLAN created over a bond, where it may not come up on restart if the MAC address of the bond changes. (19802253)
- Fixes an issue where dom0 kernel reported "Can't map rx data" with bnx2x 10Gb NICs (20397398)
- Fixes a problem where refreshing a file server would sometimes return the error message "too many values to unpack". (20510340)
- Fixes an issue when upgrading from Oracle VM Server 3.2 the ETHTOOL_OFFLOAD_OPT parameter name changed to ETHTOOL_OPTS in ifcfg files. (20526276)
- Fixes a problem with select hardware configurations where dom0 does not come back online after a reboot. (20659992)
- Fixes an issue where guests were not shutting down correctly. (20663386)
- Fixes a problem where a Brocade HBA does not detect storage and shows the error "kernel: Can't locate firmware cbfw-3.2.3.0.bin". (20682061)
- Fixes a deadlock problem when calling logging functions in XendBootloader. (20752002)
- Fixes an intermittent issue where a virtual machine would not bootup after a successful shutdown. (20781679)
- Fixes an issue where InfinBand Virtual Functions were being put "Out of Service" when large virtual machines were being started or shutdown. (21133414)
- Fixes a problem where memory release was slow during a graceful shutdown of a virtual machine. (21133543)
- Fixes a problem when rebooting a large virtual machine takes a long time and causes the XM CMD to hang. (21133626)
- Fixes an issue where Live Migration with the -SSL option fails with a bad descriptor error. (21269578)

3.2 Bug Fixes in Oracle VM 3.3.2

The following notable bugs are fixed in Oracle VM Release 3.3.2:

- Fixes an issue that causes network discover to fail when Oracle VM Agent for SPARC is installed on Oracle Solaris 11.2 under certain configuration. (20646623)
- Fixes an issue that causes changing the MTU to fail when the dlmp service is enabled. (20185577)
- Fixes an issue that causes the action of taking ownership to fail when the control domain runs Oracle Solaris 11.2. (20185575)
- Fixes an issue that causes Oracle VM Agent for SPARC to fail on Oracle Solaris 11.2 control domain. (18371968)
- Fixes a server upgrade issue where fba (Brocade Fibre Channel HBA Driver) is not loaded for the FC slots. (20729090)
- Fixes an issue where the virtual machine status shows "domain-unnamed" after live migration. The fix is delivered with newer Xen package (xen-4.3.0-55.el6.22.18 or later). (20687187)
- Fixes an issue that live migration from earlier Oracle VM Server versions to 3.3.2 leaves Linux PVHVM guest in a hung state. The fix is delivered with newer Xen package (xen-4.3.0-55.el6.22.18 or later). (19517860)

- Fixes an issue that idle virtual machines may use more CPU resources than they need. (20138111)
- Fixes a network setting issue by using the "ETHTOOL_OPTS" directive instead of "ETHTOOL_OFFLOAD_OPTS". (19731130)
- Fixes "unauthorized access" errors when an Oracle VM Server has been removed from a clustered server pool. (19725961)
- Fixes an issue where the virtual machine cannot ssh to a server located outside the Oracle VM environment. (19589497)
- Fixes an issue when stopping a virtual machine. (19557384)
- Fixes the issue where an HVM guest may reboot under certain configuration. (19440731)
- Fixes the issue where a PXE boot installation fails when there is no DNS resolution. (19181050)
- Fixes incorrect copying of small files. (19121000)
- Fixes an issue where Oracle VM Server cannot be installed on a server that has a LUN attached with a Windows file system. (19173545)
- Fixes an issue that caused some other software installation to fail. (19181087)
- Fixes a user interface issue when cloning Oracle VM templates using Internet Explorer 9. (20077741)
- Fixes an issue with the SOS Report Tool to include the vm.cfg files and Ethtool data. (19952640)
- Fixes the issue where the VM START ON BEST Server Policy does not balance the load correctly. (19982628)
- Fixes a time-out issue for Oracle VM Manager Web Services during long-running operations. (19788626)
- Fixes the issue where a successfully launched Job is killed after multiple launch attempts. (19636855)
- Fixes an issue to show the correct virtual machine console of the selected virtual machine. (19590077)
- Fixes the issue where adding an Oracle VM Server that has its management network interface in a VLAN, didn't add the IP address and hostname to the /etc/hosts file. (19587036)
- Fixes an issue that caused an upgrade failure. (19526524)
- Fixes an upgrade issue where the MTU is inconsistent between the Bridges and the Virtual Interfaces (VIFs). (19241260)
- Fixes the issue that some special characters were not handled correctly when using Firefox browser to access the serial console. (19187642)
- Fixes the issue where non-sparse Virtual Disks became sparse after resizing them via the Oracle VM Manager. (19146857)
- Fixes the issue where sparse copying of virtual disks did not work in SPARC environments. You must run Oracle Solaris 11.2 or greater within the control domain. (14851945)
- Fixes the issue where Oracle VM Manager shows the disk size as 0 when using multipath devices and the first device in the list is passive. (19131600)
- Fixes the issue that Control-C is mishandled in serial console. (19004079)
- Fixes the issue that the serial console fails to display long entries correctly. (18969505)

- Fixes the issue of non-US keyboard mapping when accessing virtual machine console. (18089107)
- Fixes the issue that the cursor is not displayed in the serial console for SPARC guest. (18085387)
- Updates MySQL to the newer version 5.6.21. (20062369)
- Includes the latest critical patch update for Weblogic from October 2014. (19346370)
- Includes Java 7 critical patch updates in Oracle VM Manager (19346310)

3.3 Bug Fixes in Oracle VM 3.3.1

The following notable bugs are fixed in Oracle VM Release 3.3.1:

- Fixes an issue with uninstalling Oracle WebLogic Server during uninstalling Oracle VM Manager. (16203060)
- Fixes an issue where the Oracle VM Manager does not initialize after installing and starting it. (16202979)
- Fixes an issue where an object cannot be deleted.(16823781)
- Fixes an "Object Not Found" exception when deleting a file system mount. (17219387)
- Fixes an issue where it is not possible to upgrade due to a JDBC connection error. (17250224)
- Fixes a performance issue to speed up the discovery process of a physical LUN. (17447037)
- Fixes an issue to properly handle duplicated storage initiators when deleting an Oracle VM Server. (17263779)
- Adds support to specify the network ID when editing a Virtual NIC via the Oracle VM Manager Command Line Interface. (17294253)
- Fixes an issue in which VLAN objects were deleted during discovery. (16886580)
- Fixes the failure which occurred when trying to add more than four disks on Solaris 10. (16939432)
- Fixes an issue where ISCSI log out fails with the error "FAILED TO DELETE NODE RECORD FOR PORTAL". (16886208)
- Fixes the exception when Oracle VM Manager is started and shows the error "FAILED TO START MODEL ENGINE - JAVA.LANG.NULLPOINTEREXCEPTION". (17192350)
- Fixes the exception that occurs during the Storage Connect plug-in upgrade when Oracle VM Manager cannot access the plug-in. (16855900)
- Fixes a performance issue to speed up job debug transcript. (16988868)
- Fixes the issue where jobs are missing start and end times. (17192350)
- Fixes the issue to make sure an intra-server network does not have any ports allocated to it before creating the network. (17173360)
- Fixes an issue that prevented Oracle VM Server from upgrading to a version not supported by Oracle VM Manager. (16225828)
- Fixes an issue with redundant "refresh storage layers" operations in the case of multiple LUNs presented to an access group. (16345107)

- Fixes an issue with "Object Not Found" exceptions during parallel operations which include discovery and VM delete. (16569334)
- Fixes Null Pointer Exception in the event of a null Storage Connect plug-in. (16843328)
- Fixes problem importing a VM on SPARC servers. (16441398)
- Improves Oracle VM Manager performance. (16600883)
- Displays the correct version number for Oracle VM Manager during installation or upgrade. (16473785)
- Fixes incorrect object count for virtual machines in the Oracle VM Manager log files. (16382730)
- Prevents thread leaks when stopping multiple virtual machines sequentially or in parallel when using the Oracle VM Manager CLI. (16357202)
- Prevents a Null Pointer Exception when removing a LUN from an Access Group. (16357417)
- Fixes a rare condition when the starting command of a virtual machine did not get executed. (16051311)
- Fixes a security vulnerability exposed by Oracle VM Manager upgrade process. (16239127)
- Fixes the "Object Not Found" issue when a virtual disk file has been manually removed (or renamed). (16226364)
- Fixes a memory leak issue after exiting the Oracle VM Manager Command Line Interface when running the exit.sh script. (16236217)
- Adds certain event classes required by some Oracle software. (16092276)
- Fixes the issue that the Oracle VM Guest Additions (VM-API) send keys and values are logged in events. (16179187)
- Adds support in Oracle VM Manager Command Line Interface for returning the "Page83 ID" when listing physical disks. (15950559)
- Improves the time needed to scrub the free memory during installation or boot time for Oracle's Sun Server X2. (14829299)
- Fixes an issue where weak cipher connections are allowed for secure live migration. (16721961)
- Fixes an issue where the Oracle VM Agent allows weak cipher connections. (16721654)
- Fix which includes Xen tools (QEMU) patches to make hot-plug for vCPU work correctly. (17562626)
- Fixes an issue where the (deprecated) `modprobe.conf` file was still used for bonding configuration. (16892503)
- Updates the ethtool package to support the -f option. (17264204)
- Fixes an issue where OVMWATCH reports the wrong UUID on live migration. (16453997)
- Fixes an issue where HVM virtual machines in an OVF assembly have a limit of four virtual disks. (16609127)
- Fixes an issue with mounting EMC Power Path volumes. (16511097)
- Fixes an issue where the network interface does not come up after reboot in LACP mode. (16495256)

- Fixes an issue where PV virtual machines cannot connect to network when using 31 virtual interfaces. (16039922)
- Fixes an issue that failover failed on bond using ixgbe driver with jumbo frames enabled. (16886409)
- Disables the bridge multicast_snooping to avoid potential packet drop from the guests. (16746299)
- Fixes an upgrade issue to return the correct UUID when discovering an Oracle VM Server with an SMBIOS newer than version 2.6. (16221689)
- Sets a maximum of 20 vCPUs for Dom0 on large systems to provide better out-of-the-box10Gb Ethernet performance. (15865742)
- Adds IPMI lanplus interface support. (14777351)
- Fixes an issue where a SPARC virtual machine may fail to access its ZFS pool after restart from Oracle VM Manager. (16909866)
- Fixes the issue where duplicated warning message is displayed when logging into the control domain. (16173730)
- Adds package dependency on NTP to ensure it is present. (16297871)
- Fixes the issue that Oracle SPARC M5 servers are not correctly identified. (16383869)
- Provides the update script to perform Oracle VM Agent upgrade on SPARC. (16383971)

3.4 Bug Fixes in Oracle VM 3.2.1

The following notable bugs are fixed in Oracle VM Release 3.2.1:

- Fixes the issue where during server discovery, Oracle VM attempted to discover all file server mounts even if the server was not in the file server's admin server list. (14573204)
- Improves the handling of slave ports with differing MTU settings during bond creation. (13929346)
- Adds check for network port value, prevents a null pointer exception from being thrown. (14653155)
- Fixes the "Object Not Found" issue when hitting the Escape button in the VLAN dialog box. (15827079)
- Adds support for dynamically changing the cluster store cache size. The default cache size is now 150K. (15850684)
- Fixes the issue where the latest update of Microsoft Internet Explorer versions 7, 8 and 9 failure to connect to Oracle VM Manager over HTTPS . (14754924)
- Fixes the issues where closing the browser leaves open jobs in Oracle VM Manager in a bad state. (15838028)
- Removes unnecessary locks when creating VNICs in a multi-threaded operation. (14054156)
- Fixes the issue when discovering a virtual machine that has disks in a undiscovered repository or has undiscovered physical disks. (14104117)
- Object not found where vdisks are left stale in certain multi-thread operations.(14043681)
- Oracle VM Manager hangs after a restart due to various tasks running jobs in the global context. (14175298)

- Stale lock issue on multithreaded server where object not found error happens in some rare situations. (14108096)
- Oracle VM Manager fails to discover the server or start the server after the server hardware configuration (i.e. BIOS) was modified. (14169237)
- HTTP cannot be disabled. (13524729)
- Oracle VM Manager UI time-out issue where the default value is not long enough for storage repository creation. (13925232)
- List of target servers (and "other servers") is not ordered by name when migrating a virtual machine. (14160596)
- Size of the "Edit Vlan Group" window should display all information correctly. (14160610)
- Navigation tree (servers) is not ordered by name. (14160581)
- Upgrade process must not continue when the Oracle VM Manager cannot be stopped. (14305714)
- Issue in server rediscovery due to the YUM repository URL reset. (14228607)
- iSCSI initiators are no longer associated with the ZFS Storage Appliance Access Groups after a restart of the Oracle VM Manager . (14180913)

3.5 Bug Fixes in Oracle VM 3.1.1

The following notable bugs are fixed in Oracle VM Release 3.1.1:

- Outage scenario requires acknowledging multiple events on multiple objects. (13845733)
- The installer does not allow the reuse of an existing database. (13744793)
- Cannot remove server pool file system from Oracle VM Manager if the server pool file system is corrupted. (13601257)
- Unable to create a repository on a LUN that already has partitions on it. (13596838)
- HVM guests failed to start or panic when MEM is not equal to MAXMEM. (13560881)
- Cannot remove VM and Oracle VM Server from Oracle VM Manager if the Oracle VM Server goes away. (13473061)
- OCFS2 storage repository size is not updated in core and user interface even if repository is refreshed. (13449381)
- Oracle VM Server boot over multipath SAN fails to initialize DM MP devices. (13341598)
- VM start is pending. (13044663)
- API for CPU utilization returning negative values. (12999197)
- Resizing a physical disk/LUN does not resize the file system. (12962538)
- Oracle VM Server fails to boot from multipath SAN disks. (12682785)
- Unable to upgrade from Oracle VM Server Release 3.0.3 to Oracle VM Server Release 3.1.1 on an HP ProLiant BL680c G5 Server. (14690247)

3.6 Bug Fixes in Oracle VM 3.0.3

The following notable bugs are fixed in Oracle VM Release 3.0.3:

- Oracle VM Manager upgrade improvements significantly reduces upgrade time.
- IP addresses entered in Oracle VM Manager are always validated to ensure correct formatting. An error message is displayed if the IP address is not properly formatted.
- The Linux kernel device manager (udev) has been improved to increase performance. The most significant improvement is that the time udev takes to run after booting the server has been shortened from 2-3 minutes to just seconds, eliminating system *'hangs'* and other problems in systems which are sensitive to start-up time.
- When the management network also fulfills the role of virtual machine network, a bridge for virtual machine network connectivity is created on Oracle VM Servers as they are added to the environment. As a result, virtual machines will continue to work properly when migrated to a new Oracle VM Server.
- DHCP is able to be used for VLAN Group interfaces. (13322814)
- Both Oracle VM Server and the Unbreakable Enterprise Kernel (UEK) have been patched to prevent the flood of kernel warning messages caused by illegal configuration of certain Broadcom NetXtreme II XGb (`bnx2x`) network controllers. If an illegal configuration is detected, only one warning message per controller card is displayed.
- Several network throughput issues with certain Broadcom NetXtreme II XGb (`bnx2x`) network controllers on Oracle VM Server have been resolved: default TPA settings have no adverse effect on network throughput, and network between virtual machines and NFS storage no longer hangs with `bnx2x` controllers.
- When using the untagged VLAN segment, the user must configure IP address information on the NIC port, not on the VLAN interface. This eliminates duplicate configurations and any associated risks of misconfiguration.
- A late locking scheme has been implemented for networks on virtual machine clones: the virtual NIC connection in the virtual machine is only locked at the end of the clone operation. As a result, locking issues with Ethernet networks no longer occur when multiple virtual machines are cloned in parallel from the same template.
- In Oracle VM Manager , the **Acknowledge All Events** button effectively clears **all** events, not just the items visible in the current list view.

Chapter 4 Supported Guest Operating Systems

Table of Contents

4.1 Oracle VM Server for x86 Supported Guest Operating Systems 29
4.2 Oracle VM Server for SPARC Supported Guest Operating Systems 31

The guest virtual machines you create must be one of the supported configurations listed in this section. The supported guest operating systems differ virtual machines created in x86-based server pools, and SPARC-based server pools.

4.1 Oracle VM Server for x86 Supported Guest Operating Systems

The guest virtual machines you create in an Oracle VM Server for x86-based server pool must be one of the following supported configurations.

Table 4.1 Hardware Virtualized Supported Guest Operating Systems (Linux and Solaris)

Guest Operating System	Hardware Virtualized 32-bit	Hardware Virtualized 32-bit with PV Drivers	Hardware Virtualized 64-bit	Hardware Virtualized 64-bit with PV Drivers
Oracle Linux Release 7.*x*	N/A	N/A	Yes	Yes
Oracle Linux Release 6.*x*	Yes	Yes	Yes	Yes
Oracle Linux Release 5.*x*	Yes	Yes	Yes	Yes
Oracle Linux Release 4.*x*	Yes	Yes	Yes	Yes
Oracle Solaris 11 [a]	N/A	N/A	N/A	Yes
Oracle Solaris 10 [a]	N/A	Yes	N/A	Yes
Red Hat Enterprise Linux 7.*x*	N/A	N/A	Yes	Yes
Red Hat Enterprise Linux 6.*x*	Yes	Yes	Yes	Yes
Red Hat Enterprise Linux 5.*x*	Yes	Yes	Yes	Yes
Red Hat Enterprise Linux 4.*x*	Yes	Yes	Yes	Yes
CentOS 6.*x*	Yes	Yes	Yes	Yes
CentOS 5.*x*	Yes	Yes	Yes	Yes
CentOS 4.*x*	Yes	Yes	Yes	Yes
SUSE Linux Enterprise Server 11.*x* [b]	No	No	Yes	Yes

[a] Oracle Solaris support begins with Solaris 10 10/09. The Solaris 10 or Solaris 11 OS runs as a hardware virtual machine (HVM), which requires HVM support (Intel VT or AMD-V) on the underlying hardware platform. By default, Solaris 10 or Solaris 11 OS already has the required paravirtualized (PV) drivers installed as part of the OS. Oracle Solaris 10 supports x86 32-bit and 64-bit architecture. 32-bit or 64-bit mode is selected at OS boot time by examining the hypervisor and the underlying hardware. Oracle Solaris 11 supports x86 64-bit architecture only.

[b] The minimum required kernel version for SLES 11 is 3.0.31-0.9.

To start a PVHVM guest on SLES 11, the following steps are required:

- Install the operating system and upgrade to the 3.0.31-0.9 kernel version.
- Shutdown the virtual machine.
- In Oracle VM Manager, edit the Domain Type for the virtual machine to set it to "Xen PVM".
- Restart the virtual machine.

Note

For details about Oracle software certification, please refer to My Oracle Support Document 464754.1, titled *Certified Software on Oracle VM* at https://support.oracle.com/oip/faces/secure/km/DocumentDisplay.jspx?id=464754.1.

Please also visit the Oracle VM resource page at http://www.oracle.com/us/technologies/virtualization/oraclevm/resources/index.html to learn about the support plans for available for Oracle VM, Oracle Linux and Oracle Solaris.

Table 4.2 Paravirtualized Supported Guest Operating Systems

Guest Operating System	Paravirtualized 32-bit	Paravirtualized 64-bit
Oracle Linux Release 7.*x*	No	No
Oracle Linux Release 6.*x*	Yes	Yes
Oracle Linux Release 5.*x*	Yes	Yes
Oracle Linux Release 4.*x*	Yes	Yes
Red Hat Enterprise Linux 7.*x*	No	No
Red Hat Enterprise Linux 6.*x*	Yes	Yes
Red Hat Enterprise Linux 5.*x*	Yes	Yes
Red Hat Enterprise Linux 4.*x*	Yes	Yes
CentOS 6.*x*	Yes	Yes
CentOS 5.*x*	Yes	Yes
CentOS 4.*x*	Yes	Yes
SUSE Linux Enterprise Server 11.*x*	No	Yes

Table 4.3 Microsoft Windows Supported Guest Operating Systems

Guest Operating System with Oracle VM Paravirtual Drivers for Microsoft Windows Installed	64-bit	32-bit
Microsoft Windows Server 2012 R2	Yes	N/A
Microsoft Windows Server 2012	Yes	N/A
Microsoft Windows Server 2008 R2 SP1	Yes	N/A
Microsoft Windows Server 2008 SP2	Yes	Yes
Microsoft Windows Server 2003 R2 SP2	Yes	Yes
Microsoft Windows 8.1	Yes	Yes
Microsoft Windows 8	Yes	Yes
Microsoft Windows 7 SP1	Yes	Yes
Microsoft Windows Vista SP2	Yes	Yes

Table 4.4 Oracle VM Paravirtual Drivers for Microsoft Windows Supported Releases

Oracle VM Release	Oracle VM Paravirtual Drivers for Microsoft Windows Release 3.0.1	Oracle VM Paravirtual Drivers for Microsoft Windows Release 3.2.2
Oracle VM 3.0	Yes	No
Oracle VM 3.1	Yes	No
Oracle VM 3.2	Yes	Yes
Oracle VM 3.3	No	Yes

4.2 Oracle VM Server for SPARC Supported Guest Operating Systems

The guest virtual machines you create in an Oracle VM Server for SPARC-based server pool must be one of the following supported configurations:

- Oracle Solaris 11.
- Oracle Solaris 10 8/11 or later.

See the *Oracle VM Server for SPARC 3.0 Release Notes* for any specific patches that may be necessary on these supported guest operating systems.

http://docs.oracle.com/cd/E37707_01/html/E29668/

Chapter 5 Configuration Limits

Configuration limits for Oracle VM represent tested and recommended limits, and are fully supported by Oracle.

Table 5.1 Virtual Machine Maximums

Item	x86 Maximum	SPARC Maximum
Virtual CPUs	PVM: 128 HVM: 128 PVHVM: 128; or 32 if using Oracle VM Paravirtual Drivers for Microsoft Windows Release 3.2.2.	Equivalent to the number of available CPUs on the server. [a]
Virtual RAM on 32-bit guests	PVM: 64 GB HVM: 64 GB PVHVM: 64 GB	N/A
Virtual RAM on 64-bit guests	PVM: 500,000 MB HVM: 1,000,000 MB [b] PVHVM: 2,000,000 MB; or 256 GB if using Oracle VM Paravirtual Drivers for Microsoft Windows Release 3.2.2.	Equivalent to the amount of available RAM installed on the server. [c]
Virtual NICs	PVM: 31 HVM: 8 PVHVM: 8 [d]	768 [e]
Virtual disks	Limits provided here are imposed by the guest kernel and not the hypervisor. The maximums presented depend on the capabilities of the guest operating system. PVM: 104 HVM: 4 IDE [f] , 7 SCSI PVHVM: 107; or 40 if using Oracle VM Paravirtual Drivers for Microsoft Windows Release 3.2.2. [d]	1024 [e]
Virtual disk size	OCFS2: 10 TB	Equivalent to the size of available disks on the server. The Oracle Solaris limit is 2^{63}.

[a] On a fully configured Fujitsu M10 this is equal to 2048.

On an Oracle SPARC M6 this is equal to 3072.

On an Oracle SPARC M5 this is equal to 1536.

On an Oracle SPARC T5 this is equal to 1024.

These maximums do not account for CPUs allocated to any other domains, such as the control domain. The hypervisor can allocate subsets of the overall CPU, memory, and I/O resources of a server to any given logical domain.

[b] Exceeding the 1 TB limit may work, but can result in slow boot times and the possibility that the virtual machine hangs at boot and soft lockups occur on the hosting Oracle VM Server.

If your environment needs to support live migration for HVM guests, this value must not exceed 1 TB.

[c] 32 TB on a Fujitsu M10, Oracle SPARC M5 or Oracle SPARC M6.

4 TB on an Oracle SPARC T5.

A small amount of RAM is required for the hypervisor.

These maximums do not account for RAM that is allocated to any other domains, such as the control domain. The hypervisor can allocate subsets of the overall CPU, memory, and I/O resources of a server to a given logical domain.

[d] The limit to the number of virtual disks and virtual NICs is shared when using the Oracle VM Paravirtual Drivers for Microsoft Windows. Therefore, if you define 8 virtual NICs, only 32 virtual disks can be defined for the same virtual machine.

[e] Total number of virtual NICs and virtual disks per domain for SPARC is no more than the total number of available LDC (logical domains channels) of the supported SPARC server.

[f] including CD-ROM

Note

Virtual machine maximums assume a single virtual machine using all available resources.

Table 5.2 Oracle VM Server Maximums

Item	x86 Maximum	SPARC Maximum
CPUs	320	Equivalent to the number of available CPUs. [a]
Virtual CPUs per host	900	8 per core on Oracle M-series and Oracle T-series [b] 2 per core on Fujitsu M10 [c]
RAM	6 TB	Equivalent to available RAM. [d]
Concurrently Running Virtual Machines	100	128 per physical domain (PDOM) [e]

[a] On an Oracle SPARC M6 this is equal to 3072.

On a fully configured Fujitsu M10 this is equal to 2048.

On an Oracle SPARC M5 this is equal to 1536.

On a Oracle SPARC T5 this is equal to 1024.

[b] On an Oracle SPARC M5 there are 6 cores per socket.

On an Oracle SPARC M6 there are 12 cores per socket.

On an Oracle SPARC T5 there are 16 cores per socket.

[c] There are 16 cores per socket on a Fujitsu M10.

[d] 32 TB on a Fujitsu M10, Oracle SPARC M5 or Oracle SPARC M6.

4 TB on a Oracle SPARC T5.

A small amount of RAM is required for the hypervisor.

[e] Oracle SPARC M5 or M6 each have a maximum of 512 logical domains (128 logical domains per physical domain * 4 physical domains). However, when following Oracle best practices that allocate full cores for guests, the maximum number of logical domains is 192 on Oracle SPARC M5 and 384 on Oracle SPARC M6.

Table 5.3 Server Pool and Cluster Maximums

Item	x86 Maximum	SPARC Maximum
Oracle VM Servers in a server pool (unclustered)	64	64
Oracle VM Servers in a server pool (clustered)	32	32
Number of servers	256 (16 servers * 16 server pools)	256 (16 servers * 16 server pools)
Number of running virtual machines	2,560 (10 virtual machines per server * 256 servers)	32768 (128 virtual machines per server * 256 servers). For Fujitsu M10-4S, 65536 (256 virtual machines per server * 256 servers). For Oracle SPARC M-series servers, this limitation is 128 virtual machines per server * the number of physical domains (PDoms). Each physical domain acts as its own server with its own set of logical domains.

Table 5.4 Storage Maximums

Item	x86 Maximum	SPARC Maximum
LUNs in a storage array [a]	1,000 LUNs and 2000 paths.	2^{32} targets.
OCFS2 volume size	64 TB	N/A
Files per OCFS2 volume	30,000	N/A

[a] This limit should not be confused with multipath devices. Each identical LUN connected to a single multipath device is considered to be a separate LUN with regard to this limit. For example the following configurations are supported 1,000 LUNs with 2 paths each, 500 LUNs with 4 paths each, 250 LUNs with 8 paths each.

Table 5.5 Network Maximums

Item	x86 Maximum	SPARC Maximum
NICs/ports per network bond	256	255 per bond or aggregate.
Network bonds per Oracle VM Server	No limit	No limit

Chapter 6 Known Limitations and Workarounds

Table of Contents

6.1 Solaris DLMP Service Unavailable 40
6.2 PVHVM Guest Virtual Machines Become Unresponsive After Live Migration 40
6.3 GRO Must Be Disabled After an Upgrade When Routing/Bridging with IXGBE Driver 40
6.4 Converting the deprecated ETHTOOL_OFFLOAD_OPT to ETHTOOL_OPTS 40
6.5 Restart Virtual Machines After Upgrade 40
6.6 LRO Setting Bridge Interface 41
6.7 Issue with Tagged VLAN Interface after Kickstart Installation 41
6.8 Disable Transitional Update Repository 41
6.9 (X86 Only) SWIOTLB Buffer Errors When Using Jumbo Frames on Oracle VM Server 41
6.10 Operation Transactions 41
6.11 Only One Instance of the UI Per Browser Supported 42
6.12 Cannot Connect to VM Console After Oracle VM Manager Reinstall With Same UUID 42
6.13 IPv6 Updates On Some Microsoft Windows Guests Do Not Reflect in Oracle VM Manager 42
6.14 Incorrect Text Color After Acknowledging VM Errors 42
6.15 Unable to Copy Text or Take Screen Shots of Error Dialogs 42
6.16 Safari Web Browser on Windows is not Supported 43
6.17 Internet Explorer 11 Web Browser is not Supported 43
6.18 Data Model Refreshes in the User Interface 43
6.19 Object Lock Prevents Some Operations 43
6.20 Aborting Some Jobs can Lead to Inconsistencies Between Oracle VM Manager and an Oracle VM Server 44
6.21 Unable to Configure NTP For All Servers 44
6.22 The Edit SAN Server Dialog Shows an Access Tab when Editing Fibre Channel Storage 44
6.23 Some x86 Specific Virtual Machine Parameters Are Modifiable for Guests Running On SPARC 45
6.24 Installer Text for Solaris 10 is Unreadable in the Serial Console 45
6.25 VLAN MTU is Not Set To Base Port Default When DHCP Configuration Fails 45
6.26 Use the Hide Message and Log Message Tools To Hide Sensitive Information When Sending VM Messages 45
6.27 (x86 Only) UEFI Mode Not Supported for Oracle VM Server 46
6.28 (x86 Only) Oracle VM Server Does Not Boot if Installed on a Multipath SAN Disk Greater Than 2.2 TB in Size 46
6.29 (x86 Only) Oracle VM Server Installer Goes To Black Screen After Running `/sbin/loader` 46
6.30 (x86 Only) Oracle VM Server Installer Hangs Waiting for Hardware to Initialize 46
6.31 (x86 Only) Oracle VM Server Installer Hangs Examining Storage Devices For Large Number of LUNS 46
6.32 (x86 Only) Benign Error Message During Install: HDIO_GET_IDENTITY failed 47
6.33 (x86 Only) Oracle VM Server Upgrade From CDROM Not Supported For Releases Prior to 3.3 47
6.34 (x86 Only) Oracle VM Server Upgrade From ULN or Oracle Public Yum Repositories is Restricted to Servers That Do Not Use Non-Native Packages 47
6.35 (x86 Only) Many ISCSI or Fibre Channel LUNs Require More Server Memory 47
6.36 Unable to Edit Virtual IP Field After A Server Pool is Created 48
6.37 Clustered Server Pools in Mixed Platform Environments Require NFS Access Groups To Be Configured 48
6.38 Server Kill Failure Leaves A Server In Stopping State 48
6.39 (SPARC Only) Cluster Recovery May Fail When Using NFSv3 For Server Pool File System 49
6.40 (x86 Only) Server BIOS Settings 49
6.41 (x86 Only) Oracle VM Server Does Not Support `crashkernel=auto` Boot Parameter 49

6.42 Kdump Core Collector Using Sparse Copy Fails 49
6.43 Kdump Over Network Using a XEN Bridged Interface Fails 50
6.44 Kdump Fails if Dump Location Changes 50
6.45 Kdump Out of Memory For Servers With more than 1 TB of Memory 50
6.46 Kdump Kernel Hangs Inserting the megaraid_sas Module 51
6.47 (x86 Only) Oracle VM Server Installation Fails on EUFI Partitioned Disk 51
6.48 (x86 Only) Oracle VM Server Installation on Sun Fire X4800 51
6.49 (x86 Only) Installation of Oracle VM Server on some HP Server Hardware May Fail if Tape Drive is Attached 51
6.50 (x86 Only) Wake On Lan (WOL) Fails if Oracle VM Servers on Different Subnets 51
6.51 (x86 Only) Inconsistent Master Role Assignment after Cluster Failure 52
6.52 (x86 Only) Sun Fire X4170 Server Not Fenced During Cluster Failure 52
6.53 (x86 Only) Netconsole Error During Oracle VM Server Start-up, *Unknown Error 524* 52
6.54 (x86 Only) ACPI Buffer Error After Installing Oracle VM Server 53
6.55 (x86 Only) Radeon Ring Test Failed Error On Boot Resulting in Disabled GPU Acceleration 53
6.56 NVMe Devices Not Supported 53
6.57 DPM Fails To Power On Server When Threshold Reached 54
6.58 Failed Server Evacuation Defined in DPM Policy Generates User Acknowledgeable Event 54
6.59 Take Ownership of Oracle VM Server Fails with OVMRU_000009E Server Message 54
6.60 (SPARC Only) Uninstall of Oracle VM Agent on an Oracle VM Server in a Clustered Server Pool Fails To Unconfigure Cluster 54
6.61 Oracle Linux 7 and RedHat Enterprise Linux 7 Not Supported For PV Guests 55
6.62 (SPARC Only) Serial Console Hangs During Installation of Oracle Solaris 11 on Virtual Machine 55
6.63 Editing Virtual Machine Configuration File Results in Unexpected Behavior 55
6.64 Concurrent Template Operations May Fail Due to Lock Issue 56
6.65 (SPARC Only) Wrong Error Message Returned When Importing A Template From An Incorrect URL 56
6.66 Live Migration Fails but Oracle VM Manager Reports Running Virtual Machine on Target Oracle VM Server 56
6.67 (x86 Only) Virtual Machine Fails to Restart On Another Server in the Cluster if ACPI is Enabled 56
6.68 (x86 Only) Oracle Solaris 10 Virtual Machine May Hang During Shutdown 57
6.69 (x86 Only) Virtual Machine Created with Network (PXE) Installation Does Proceed Beyond Pre Boot 57
6.70 (x86 Only) Hardware Requirements for Hardware Virtualized Guests 57
6.71 (x86 Only) Maximum Memory to Start a PVM Guest is 470 GB 57
6.72 (x86 Only) 1 GB Huge Page Support On HVM Fails, 2 MB Pages Are Created Instead 57
6.73 (x86 Only) Creating a PVM Guest Slow Using Local Storage 58
6.74 (x86 Only) Virtual CDROM in PVHVM Guests not Initialized as IDE Device 58
6.75 (x86 Only) Live Migration of a VM may be Affected by Guest Linux Kernel Version 58
6.76 (x86 Only) Limitations for Hot-Changing Number of Virtual CPUs 58
6.77 (x86 Only) Improving Mouse Pointer Control in Virtual Machine Console 59
6.78 (x86 Only) Solaris 10 Kernel Panic on Some AMD Systems 59
6.79 (x86 Only) Solaris 10 Release 8/11 Guest Hangs at Boot 60
6.80 (x86 Only) Solaris 11 Guest With More Than 2 VCPUs Hangs at Boot 60
6.81 (x86 Only) Solaris 11 Release 2011.11 Guest Hangs at Boot 61
6.82 (x86 Only) Windows Server 2008 R2 x64 HVM Guests do Not Cleanly Shut Down 61
6.83 (SPARC Only) Memory Size Mismatch Between Virtual Machine and Oracle VM Manager After a Hot Add or Remove 62
6.84 (SPARC Only) Need Actual Available Memory for Live Migration 62
6.85 (x86 Only) Changing VM Type and Disabling Huge Pages at the Same Time Fails 62
6.86 (x86 Only) Network Card Limit in Virtual Machines 62
6.87 (x86 Only) QLogic QLE8242 CNA Card is Not Supported On Oracle VM Server 62
6.88 QLogic cLOM8214 1/10 Gigabit Ethernet NIC Initializes with Link State Down 63

6.89 Renaming of QLogic cLOM8214 1/10 Gigabit Ethernet NIC is Incorrect 63
6.90 (x86 Only) TPA disabled for Broadcom 10 Gigabit Ethernet 63
6.91 (x86 Only) Broadcom BCM5754 Gigabit Ethernet Does Not Support Jumbo Frames 64
6.92 (x86 Only) Incorrect ARP Reply When Using Jumbo Frames 64
6.93 (x86 Only) ARP Packet Checksum Errors 64
6.94 (x86 Only) Changing Cluster Heartbeat Network Does Not Reflect New IP Address 64
6.95 NFSv4 Read/Write Delegation Not Supported 65
6.96 (x86 Only) Unclean File System Causes Errors When Used as a Server Pool File System 65
6.97 (SPARC Only) Agent Fails to Reconcile Multipath LUNS If Solaris I/O Multipathing is Disabled 65
6.98 (x86 Only) Size of New LUN on Server is Incorrect If an Existing LUN Is Unmapped First 65
6.99 (x86 Only) Remapping LUNs Causes Storage Refresh To Hang 66
6.100 Refresh Servers Should Only Be Used For Non-Uniform Exports 66
6.101 (x86 Only) LUNs Must Be Cleaned Prior to Storage Repository Creation 66
6.102 NetApp ONTAP (8.2 c-mode) Operating System Does Not Work With Oracle VM 67
6.103 (x86 Only) Black Listing of System Disks for Legacy LSI MegaRAID Controllers Not Supported 67
6.104 (x86 Only) Blacklisting of System Disks for Multipathing Fails on HP Smart Array (CCISS) Disk Devices 67
6.105 (x86 Only) HP Smart Array CCISS Disk Devices Are Not Supported For Creation of Local Storage Repositories 68
6.106 Multi-homed NFS Shares Are Not Supported 68
6.107 (x86 Only) Multipath SAN Boot with Single Path Causes Kernel Panic or File System to be Read-Only 68
6.108 (x86 Only) Multiple Paths Used in Multipath Environments on Oracle Pillar Axiom Storage 69
6.109 Refreshing a NAS-based File System Produces Invalid/Overlapping Exports 69
6.110 (x86 Only) SAS Disks Only Supported in Local Configuration 69
6.111 Errors Occur when Storage Plug-in Versions Do Not Match Oracle VM Server Version 70
6.112 (x86 Only) Shared OCFS2 Cluster File System on Virtual Disk Not Supported 71
6.113 Virtual Disk Images Must Be Properly Aligned To The OCFS2 Block Size For Performance 71
6.114 Oracle VM Manager Command Line Interface Backspace Key 71
6.115 Oracle VM Manager Command Line Interface `create repositoryexport` Command Offers Non-Configurable Option 72
6.116 Oracle VM Manager Command Line Interface `create vmclonestorageMapping` Allows THIN_CLONE cloneType On NFS 72
6.117 No Default Value Set For Access Port When Using `create storagearray` 73
6.118 During Upgrade Other Users Must Not Be Logged Into the Oracle VM Manager Host 73
6.119 Temporary Files Must Be Manually Deleted After Upgrade of Oracle VM Manager 73
6.120 Jobs and Some Events Are Not Inherited After Upgrade 73
6.121 The P2V Conversion Utility is Not Available on the Oracle VM Server ISO 74
6.122 Unicode is Not Supported in Assemblies 74
6.123 XML Tags in Object Names and Description Cause Errors When Using the REST WS-API With XML 74
6.124 Untagged VLAN Interface Missing After Upgrade of Oracle VM Manager 74

Find information on known limitations and workaround procedures for Oracle VM.

The titles of known issues contain platform designations as follows:

- If an issue applies to Oracle VM Server for x86 only, the title includes *x86 Only*.
- If an issue applies to Oracle VM Server for SPARC only, the title includes *SPARC Only*.
- If an issue applies to both Oracle VM Server and Oracle VM Server for SPARC, the title does not include any platform designation.

6.1 Solaris DLMP Service Unavailable

The DLMP service becomes unavailable on Solaris after performing some operations.

Workaround: Upgrade to Solaris 11.2 SRU8. Refer to Oracle Solaris 11.2 Support Repository Updates (SRU) Index [ID 1672221.1] for more information.

Bug 19863969

6.2 PVHVM Guest Virtual Machines Become Unresponsive After Live Migration

After performing a live migration of PVHVM guest virtual machines from Oracle VM Server Release 3.3.1 to Oracle VM Server Release 3.3.3, the virtual machines become unresponsive.

Workaround: Do not live migrate PVHVM guest virtual machines. Alternatively, power off the guest virtual machines during a maintenance window and upgrade Oracle VM Server from Release 3.3.1 to Release 3.3.3. When the upgrade process is complete, start the guest virtual machines.

Bug 21184183, 20826023

6.3 GRO Must Be Disabled After an Upgrade When Routing/Bridging with IXGBE Driver

A kernel issue requires that Generic Receive Offload (GRO) be disabled when routing or bridging wiht the IXGBE driver. This issue has been fixed for fresh installs, but if you are upgrading to the current release from a release prior to Oracle VM Server 3.3.3, you must disable GRO manually yourself.

Workaround: Disable GRO manually on each affected Oracle VM Server, using ethtool:

```
# ethtool -K ethX gro off
```

Bug 21353855

6.4 Converting the deprecated ETHTOOL_OFFLOAD_OPT to ETHTOOL_OPTS

Older versions of Oracle VM Server that are based on Oracle Linux 5, such as Release 3.2.9, include a deprecated `ETHTOOL_OFFLOAD_OPT` option in the network startup script.

Workaround: After upgrading to Oracle VM Server Release 3.3.x, you must change the `ETHTOOL_OFFLOAD_OPT` option to `ETHTOOL_OPTS` in `ifcfg*` files.

Bug 20989506

6.5 Restart Virtual Machines After Upgrade

If you upgrade from Oracle VM Server Release 3.3.1 using PVHVM and live migration, you must restart your virtual machines after the upgrade is complete.

Workaround: There is no workaround for this issue.

Bug 20826023

6.6 LRO Setting Bridge Interface

The LRO setting should be disabled when the interface is part of a bridge.

Workaround: There is no workaround for this issue.

Bug 20390704

6.7 Issue with Tagged VLAN Interface after Kickstart Installation

If you use a tagged VLAN interface while performing a kickstart installation of Oracle VM Server, the configuration of the VLAN interface is not correct after the installation completes.

Workaround: Manually configure the VLAN interface after installation.

Bug 20011623

6.8 Disable Transitional Update Repository

Known issue where the Transition Update Repository needs to be disabled via Oracle VM Manager UI when upgrading Oracle VM Server to a newer 3.3 maintenance release

Workaround: Disable the transitional update repository before upgrading Oracle VM Server Release 3.3.

Bug 20288874

6.9 (X86 Only) SWIOTLB Buffer Errors When Using Jumbo Frames on Oracle VM Server

When a network port has been configured for jumbo frames on an Oracle VM Server, errors may appear in the logs of the Oracle VM Server indicating that the SWIOTLB buffer is full. The SWIOTLB is a software component used by the Xen hypervisor. By default, 128 chunks of 512 KB of memory are allocated to SWIOTLB. On an active Oracle VM Server with jumbo frames enabled, these chunks of memory can be used up quickly, degrading network performance and resulting in errors in the system log.

Workaround: Change the Oracle VM Server grub configuration to append the `swiotlb=256` option to the kernel line.

Bug 20693762

6.10 Operation Transactions

A major change to the way in which the CLI and Oracle VM Manager Web Interfaceinteracts with Oracle VM Manager means that transactions have changed in Release 3.3.1. From Release 3.3.1 onwards, if an operation that contains child operations fails, it is important to check the state of all objects affected by the parent and child operations. For example, during the creation of a server pool, the parent command calls a number of child operations. If any of these child operations fail, the command returns an error, but the server pool object may still be created by the parent operation. In this case, the server pool object must be removed manually before attempting to create the server pool again.

Workaround: If an operation fails, check to ensure that the object you were attempting to create is not listed within Oracle VM Manager. If the object is listed, you must remove it before attempting to create it again.

Bugs 17377700, 17436889

6.11 Only One Instance of the UI Per Browser Supported

If you connect to the Oracle VM Manager UI in a web browser twice, in two different tabs or windows, unexpected display issues may occur.

Workaround: You should only connect to one instance of the Oracle VM Manager UI per web browser session.

Bug 13034728

6.12 Cannot Connect to VM Console After Oracle VM Manager Reinstall With Same UUID

After reinstalling Oracle VM Manager with the same UUID, it is possible that connecting to a virtual machine via either the serial or VNC console results in a blank screen. This behavior is intermittent and may affect some systems and not others. To restore console functionality, a service must be restarted on the Oracle VM Server where the virtual machine is running.

If the Oracle VM Server is running on x86 hardware, the following command must be run as root on the Oracle VM Server affected:

```
service ovm-consoled restart
```

If the Oracle VM Server is running on SPARC hardware, the following command must be run as root on the Oracle VM Server affected:

```
svcadm restart ovmwatch
```

Bug 14524471

6.13 IPv6 Updates On Some Microsoft Windows Guests Do Not Reflect in Oracle VM Manager

On Microsoft Windows guests prior to Microsoft Windows Vista, if the IPv6 address is changed and the IPv4 address remains constant, Oracle VM Manager does not reflect the IP address change until the IPv4 address is changed as well.

Bug 14005821

6.14 Incorrect Text Color After Acknowledging VM Errors

After acknowledging an error event on a virtual machine, the text in the **Event Severity** column of the **Virtual Machines** perspective in the **Servers and VMs** tab is displayed in red, instead of black. The error event has been acknowledged, and the incorrect text color can be ignored.

Workaround: Navigate to another page in the UI, then return to the **Virtual Machines** perspective in the **Servers and VMs** tab. The text is the correct color, black.

Bug 14027051

6.15 Unable to Copy Text or Take Screen Shots of Error Dialogs

Some web browser versions have been shown to have trouble allowing users to copy the text in pop-up error dialogs, or to take screen shots of these. This problem is limited to ADF induced pop-up dialogs.

Workaround: Update your web browser to a more recent version, or try using an alternative web browser.

Bug 17832280

6.16 Safari Web Browser on Windows is not Supported

On Windows using Safari to access Oracle VM Manager results in a blank page. This is due to a failure that occurs during the SSL handshake when the server has enabled two-way SSL. Since Oracle VM Manager uses two-way SSL for client certificate authentication, the Safari browser is not supported on Windows.

Bug 18025985

6.17 Internet Explorer 11 Web Browser is not Supported

If you access the Oracle VM Manager Web Interface using Microsoft Internet Explorer 11, a message is displayed that the browser is unsupported. Any attempt to log into the Oracle VM Manager Web Interface results in a blank page. Microsoft Internet Explorer 11 is not supported with Oracle VM Manager.

Bug 17236592

6.18 Data Model Refreshes in the User Interface

If you remove a server from a server pool that has VLAN interfaces configured and then change the server pool perspective to VLAN Interfaces, the VLAN interface for that server is still shown with an unassociated server. If you select an alternate item in the navigation panel and then return to the VLAN Interfaces perspective for the server pool, the VLAN interface for the removed server is no longer displayed.

Similarly, if you change a network name in the Oracle VM Manager Command Line Interface, the network name is not automatically updated in the user interface until the user clicks out of the view and then returns to it.

Similarly, if you release ownership of a server within the Oracle VM Manager Web Interface and you view the Server Info perspective for that server, the Ownership field may continue to display "Owned by you" until you have clicked on another server or item in the navigation pane and return to the Server Info perspective for the affected server at a later time.

There are some minor user interface bugs that are caused by a model refresh problem. The data presented in various views is only refreshed when a user changes out of the view and returns to it or an event triggers a data model refresh within the user interface.

Workaround: To obtain a fresh view of the data for a particular object within the user interface, click on an alternative item in the navigation panel and then return to the item that you were looking at.

Bugs 17991359, 17707831, 18635816

6.19 Object Lock Prevents Some Operations

Some operations, such as server discovery, lock particular objects in the data model until they have finished executing. This is to protect these objects from modification by an external process that may interrupt the currently running operation or result in inconsistencies within the data model. If an object is locked when either the Oracle VM Manager Web Interface or Oracle VM Manager Command Line Interface attempts to edit it, an error is returned to notify you of the lock. This error may look similar to the following:

```
GEN_000029:Object server1.example.com:ff:20:00:08:ff:ff:ff:ff:ff:ff:00:21:28:af:a4:92
```

```
of type Server could not be modified as it was locked when it was fetched.
```

Workaround: If you are using the Oracle VM Manager Web Interface to perform the edit, close the edit dialog and then reopen it to refresh the data that is contained within it before attempting to retry the edit operation.

If you are using the Oracle VM Manager Command Line Interface perform a `show` operation against the object to see the current values and to ensure that the object is not locked. Objects that can be locked include a 'locked' attribute that is displayed when you perform a `show` operation. If the object is no longer locked, you can retry your edit.

Bug 18385924

6.20 Aborting Some Jobs can Lead to Inconsistencies Between Oracle VM Manager and an Oracle VM Server

Aborting jobs that are in progress within Oracle VM Manager can sometimes lead to inconsistencies between the status reported by Oracle VM Manager and the actual status on an Oracle VM Server. For instance, if you abort the migration of a virtual machine while the operation is in progress, Oracle VM Manager may indicate that the virtual machine is in 'stopped' or 'suspended' status, even though the virtual machine is actually running on an Oracle VM Server. This may impact on operations that you perform subsequently within Oracle VM Manager, resulting in rule-based exceptions that do not match the situation as it is on the affected Oracle VM Server.

Aborting jobs should only be attempted if a job has actually hung and there is no other way to free up locks on the object affected by the job. After aborting a job, it is good practice to refresh any affected objects that may have been affected by the job. For instance if a job affects a virtual machine or Oracle VM Server, you should refresh the Oracle VM Server to ensure that the correct status is reflected in Oracle VM Manager.

Bug 18704027

6.21 Unable to Configure NTP For All Servers

Previous releases of the Oracle VM Manager Web Interface provided an option to configure NTP for all of the Oracle VM Servers that were under the ownership of the Oracle VM Manager instance. The option to perform batch configuration of NTP is no longer available in the Oracle VM Manager Web Interface, however it is possible to edit the NTP servers for each individual Oracle VM Server in Oracle VM Manager in the **Edit Server** dialog.

If you need to batch edit the NTP servers for a large number of Oracle VM Servers in your environment, you should use the Oracle VM Manager Command Line Interface or the Oracle VM Web Services API to do this programmatically.

Bug 18435973

6.22 The Edit SAN Server Dialog Shows an Access Tab when Editing Fibre Channel Storage

The **Edit SAN Server** dialog always shows an *Access* tab, regardless of whether you are editing Fibre Channel or iSCSI storage. The tab contains options that are only relevant to iSCSI storage. Editing the fields in this tab for a Fibre Channel storage device has no effect on storage connectivity.

Bug 18544059

6.23 Some x86 Specific Virtual Machine Parameters Are Modifiable for Guests Running On SPARC

Some x86 specific parameters for virtual machines are not greyed-out and are modifiable when a virtual machine is configured to run on a SPARC-based server pool. These parameters appear in the Create Virtual Machine and Edit Virtual Machine dialogs in the Oracle VM Manager Web Interface and include settings like the Keymap, Mouse Device Type, Domain Type, Priority and Processor Cap %. Changing any of these parameters for a virtual machine running on a SPARC server pool has no effect on the virtual machine, but may generate a job that is processed by Oracle VM Manager to change the representation of the virtual machine object within the Oracle VM Manager database. The job usually completes successfully.

Bugs 18788652, 18715655

6.24 Installer Text for Solaris 10 is Unreadable in the Serial Console

The text in the Solaris 10 installer is unreadable in the virtual machine serial console available in the Oracle VM Manager Web Interface, and key presses are unpredictable making it difficult to complete the installation. This is related to a problem mapping the control codes returned by the terminal emulation used by the installer.

When you begin the installation, you are presented with an option to select the terminal emulator that should be used for the rest of the installation. This should be set to `Xterm emulation` for the best possible experience with the virtual machine serial console. Even with this option set, some text is corrupted, particularly when selecting the timezone in the installer, but installation can still proceed.

The Oracle Solaris 11 installers are unaffected.

Bug 18094646

6.25 VLAN MTU is Not Set To Base Port Default When DHCP Configuration Fails

Unlike the Oracle VM Manager Command Line Interface and the Oracle VM Web Services API, the Oracle VM Manager Web Interface does not set a VLAN MTU to the same value as the base port default setting when DHCP configuration fails. Instead, the value is set to the MTU value specified in the Oracle VM Manager Web Interface. The default value for the MTU setting in the Oracle VM Manager Web Interface is 1500. This results in an inconsistency in behavior when using the Oracle VM Manager Command Line Interface and Oracle VM Manager Web Interface.

Bug 18697762

6.26 Use the Hide Message and Log Message Tools To Hide Sensitive Information When Sending VM Messages

When using the Send VM Messages facility in the Oracle VM Manager Web Interface, you should disable the `Log Message` check box and enable the `Hide Message` check box if you are sending a message with a key-value pair that contains sensitive data, such as root credentials for the virtual machine. This facility has been provided to help protect your sensitive data when using these tools.

If you are using the Oracle VM Manager Command Line Interface you should use the "log=no" parameter when sending a message that contains sensitive data so that this data is not stored anywhere.

Bug 18953262

6.27 (x86 Only) UEFI Mode Not Supported for Oracle VM Server

Unified Extensible Firmware Interface (UEFI) mode is not supported for Oracle VM Server. If UEFI mode is enabled within the BIOS, the installation may fail or the server may have issues booting.

Workaround: Disable UEFI mode in the BIOS and select Legacy mode as an alternative to run Oracle VM Server on a system that uses UEFI by default.

Bug 17586566

6.28 (x86 Only) Oracle VM Server Does Not Boot if Installed on a Multipath SAN Disk Greater Than 2.2 TB in Size

Oracle VM Server cannot be installed properly onto a multipath SAN disk that is greater than 2.2 TB in size. This may be a limitation of the partition manager used in conjunction with a multipath SAN disk during installation. Although installation of Oracle VM Server may complete on a larger disk, the server may have issues booting.

The problem does not affect local physical disks. If you are experiencing this issue, either resize the SAN disk that you are installing to, or select to install to a local physical disk.

Bug 18649993

6.29 (x86 Only) Oracle VM Server Installer Goes To Black Screen After Running `/sbin/loader`

While the Oracle VM Server Installer is booting, the installer runs `/sbin/loader` and then the screen goes black on some systems, such as the Dell Optiplex 755. This is a hardware issue related to the Intel 82Q35 Graphics Controller used on these systems.

The fix is to disable Intel VT-d (Intel Virtualization Technology for Directed I/O) functionality within the BIOS.

Bug 17817142

6.30 (x86 Only) Oracle VM Server Installer Hangs Waiting for Hardware to Initialize

While the Oracle VM Server Installer is booting, it can hang for between 9 and 30 minutes with the message: "Waiting for hardware to initialize...". This occurs when the system BIOS is misconfigured to search for a floppy drive and the system has no floppy drive installed.

This behavior only occurs in the installer, and is not present once Oracle VM Server has completed installation.

The fix is to correct the BIOS setting and disable the floppy drive.

Bug 18036268

6.31 (x86 Only) Oracle VM Server Installer Hangs Examining Storage Devices For Large Number of LUNS

When performing a Kickstart installation of Oracle VM Server, the Installer can hang for long periods with the message: "Examining storage devices...". This occurs when a very large number of Fibre Channel

LUNs is attached to the server and the Kickstart configuration file has not been configured to ignore all disks other than the target installation disk.

To resolve this issue add a line to your Kickstart configuration similar to the following:

```
ignoredisk --only-use=/dev/disk/by-path/pci-0000:00:1f.2-scsi-0:0:0:0
```

Change the path of the `--only-use` parameter to match the target disk that you intend to install to.

See the *Oracle VM Installation and Upgrade Guide* for more information on this and on Kickstart installations.

Bug 17586422

6.32 (x86 Only) Benign Error Message During Install: HDIO_GET_IDENTITY failed

A benign error message may appear on the Oracle VM Server console during or at the end of an installation. The error usually looks similar to the following:

```
ata_id[23584]: HDIO_GET_IDENTITY failed for '/dev/sdh'
```

This error does not affect installation in any way.

Bug 17457813

6.33 (x86 Only) Oracle VM Server Upgrade From CDROM Not Supported For Releases Prior to 3.3

Upgrading an x86 Oracle VM Server directly from CDROM is not supported when attempting to upgrade from a release prior to a 3.3 release. Upgrades from previous releases are complex and require transitional steps that are handled using an upgrade script, and which require you to configure and set up the yum repositories that are needed to complete an upgrade of this type. The full process is documented in the *Oracle VM Installation and Upgrade Guide*.

Bug 17946919

6.34 (x86 Only) Oracle VM Server Upgrade From ULN or Oracle Public Yum Repositories is Restricted to Servers That Do Not Use Non-Native Packages

Upgrading an x86 Oracle VM Server directly using ULN or Oracle Public Yum Repositories is supported on condition that your Oracle VM Server does not use any third party storage plugins or have any non-native packages installed.

6.35 (x86 Only) Many ISCSI or Fibre Channel LUNs Require More Server Memory

As the number of iSCSI or Fibre Channel LUNs or targets used by an Oracle VM Server is increased, the memory consumption increases on the server. This is normal, as more memory is required by dom0 to connect to each LUN or target. Therefore, if you intend to add a large number of LUNs to a server, you must allocate an appropriate amount of physical memory to the server to handle this, and the additional

memory must be assigned to dom0 for use. Typically this should be around 1 MB per LUN on top of the memory allocated to run dom0. See Changing the Oracle VM Server (Dom0) Memory Size for information on how to change the dom0 memory allocation.

Memory is assigned to dom0 within the `/boot/grub/grub.conf` on the server, as shown in the following line of the configuration:

```
kernel /xen.gz console=com1,vga com1=38400,8n1 dom0_mem=1176M allowsuperpage
```

Ideally this should be allocated at installation so that the dom0 grub configuration is updated automatically. Otherwise, you may need to adjust the grub configuration yourself.

Insufficient memory to support the number of LUNs on an Oracle VM Server results in out-of-memory (oom) kills and server instability.

Bug 17614799

6.36 Unable to Edit Virtual IP Field After A Server Pool is Created

When a server pool has finished being created, if an incorrect IP address was entered into the Virtual IP field, it is not possible to change the virtual IP address.

The only way to resolve this is to remove all the servers from the server pool, delete the server pool and create a new one.

Bug 12821548

6.37 Clustered Server Pools in Mixed Platform Environments Require NFS Access Groups To Be Configured

When creating a clustered server pool with NFS as the storage for the server pool file system, Oracle VM Manager randomly selects a server to initialize the NFS file system to be used by the clustered server pool. This can cause problems in environments where Oracle VM Manager has been configured for both x86 and SPARC servers, since the pool file system is different for each of these platforms and can only be used by servers of the same type.

If an NFS pool file system is initialized by an x86 server then that file system can only be used for a cluster server pool with x86 servers. Similarly, if an NFS pool file system is initialized by a SPARC server then that file system can only be used for a cluster server pool with SPARC servers.

To prevent this issue, before creating a clustered server pool with an NFS file system, create a file system access group for that file system with only the servers that will be in the server pool.

Bug 17490488

6.38 Server Kill Failure Leaves A Server In Stopping State

If an attempt to kill an Oracle VM Server fails, the server can be left in "Stopping" state, which disables many of the context menu features for the server. This state may remain indefinitely.

Workaround: To recover, you must rediscover the server by using the "Discover Servers..." option in the Oracle VM Manager Web Interface or by using the appropriate Oracle VM Manager Command Line Interface command. See Discover Servers in the *Oracle VM Manager User's Guide* for more information on this operation.

Bug 18939406

6.39 (SPARC Only) Cluster Recovery May Fail When Using NFSv3 For Server Pool File System

If an Oracle VM Server in a clustered server pool fails, any file locks created by the NFS server while the Oracle VM Server was online are enforced until the Oracle VM Server recovers and notifies the NFS server to release those locks. This can block other Oracle VM Servers in the cluster indefinitely. This behavior is the result of the stateless nature of NFSv3 and its file locking mechanism. The locks can be cleared in Solaris, using the `clear_locks` command. However, this problem is recurrent as long as you continue to use NFSv3 to host a cluster file system.

Since NFSv4 is a stateful protocol and its locking mechanism is built into the protocol, this problem does not occur if you use NFSv4 to host a cluster file system. Under NFSv4, the state associated with file locks is maintained at the server under a lease-based model, where locks are leased to a client and the client needs to renew the lease. If the client fails to renew the lease then the NFS server is free to give the lock to another client. Therefore, SPARC-based server pools that are configured to use clustering, should use an NFSv4 export to host the cluster file system.

Note that since x86 server pools use an OCFS2 file system, even if they are hosted on an NFS share, they are unaffected by this problem.

Bug 18997487

6.40 (x86 Only) Server BIOS Settings

The following server BIOS settings may be required to use Oracle VM Server:

- AHCI mode may be necessary to recognize the CDROM device to perform an installation from CDROM.
- Disable I/O MMU Virtualization Settings; for Intel-based servers this is *VT-d*; for AMD based servers this is *AMD-Vi* or *IOMMU*. I/O MMU is not supported in this release.

6.41 (x86 Only) Oracle VM Server Does Not Support `crashkernel=auto` Boot Parameter

Although Oracle Unbreakable Enterprise Kernel 3 (UEK3) supports the `crashkernel=auto` boot parameter, this option is not supported by the Xen hypervisor that is used for Oracle VM Server. Attempting to set this parameter results in the following boot errors:

```
(XEN) crashkernel: memory value expected
(XEN) Command line: console=com2,vga com2=57600,8n1 dom0_mem=840M allowsuperpage  crashkernel=auto
```

Dom0 fails to load the kdump service at start-up with the following message:

```
kdump: No crashkernel parameter specified for running kernel
```

Workaround: Specify a valid fixed memory range suitable for the server hardware if you choose to use this parameter. For example, `crashkernel=256M@64M`.

Bug 18174580

6.42 Kdump Core Collector Using Sparse Copy Fails

When kdump on an Oracle VM Server is configured to use sparse files for vmcore dump files to reduce the dump file size, kdump fails with an error similar to:

```
Scanning and configuring dmraid supported devices
...
cp: unrecognized option `--sparse=always'
...
```

Workaround: Add the following to the `kdump.conf` on the Oracle VM Server:

```
extra_bins /bin/cp
core_collector /bin/cp --sparse=always
```

Bug 15959684, 17943175

6.43 Kdump Over Network Using a XEN Bridged Interface Fails

Using kdump on an Oracle VM Server over a network using a XEN bridged interface fails and is not supported in this release.

Bug 16085278

6.44 Kdump Fails if Dump Location Changes

If the device for the kdump location changes, the kdump data file cannot be written to the dump device. This results in messages in the error log similar to:

```
kdump: kexec: loaded kdump kernel
kdump: started up
kernel: Bridge firewalling registered
kernel: bio: create slab <bio-2> at 2
init: ovs-console-tty (ovs-console-tty) main
process (3017) terminated with status 1
```

This may occur if the device letters of the dump disk have changed, for example from /dev/sda to /dev/sdb during a reboot. Kdump assumes the default (first) block device (sda), and that may have changed during a reboot.

Workaround: Specify the kdump file system using the UUID and not the path to the block device, for example, use `ext4 UUID=`*`uuid`* in the `/etc/kdump.conf` file.

Bug 18676354

6.45 Kdump Out of Memory For Servers With more than 1 TB of Memory

Systems with large amounts of memory (1 TB and higher) may result in kdump crashes due to out-of-memory errors. The error usually results in a kernel panic with the error message:

```
Kernel panic - not syncing: timer doesn't work through Interrupt-remapped IO-APIC
```

Workaround: Edit the `/etc/sysconfig/kdump` file and append the "`iommu=off`" option to the end of KDUMP_COMMANDLINE_APPEND variable.

After you have finished editing the file, perform the following steps as root on the command line of the affected server:

```
# touch /etc/kdump.conf
service kdump restart
```

Bug 18629716

6.46 Kdump Kernel Hangs Inserting the megaraid_sas Module

On some systems using the Cisco enic driver, a kernel configured for kdump may hang while attempting to load the megaraid_sas module. This issue has been identified on a Cisco UCS B230 server. The problem appears to be resolved by disabling the Cisco enic driver.

Workaround: To disable the Cisco enic driver, add the following line to the `/etc/kdump.conf` file:

```
blacklist enic
```

Bug 18509399

6.47 (x86 Only) Oracle VM Server Installation Fails on EUFI Partitioned Disk

The Oracle VM Server installer is unable to install to a disk that is using a Unified Extensible Firmware Interface (EUFI). Currently Oracle VM only uses the standard BIOS to support installation.

Workaround: Make sure that UEFI support is disabled in your system BIOS.

Bugs 15856811

6.48 (x86 Only) Oracle VM Server Installation on Sun Fire X4800

If you are installing Oracle VM Server on a Sun Fire X4800, you must provide extra parameters when booting from the installation media (CDROM or ISO file), or when using a kickstart installation. These parameters allow the megaraid_sas driver to load correctly.

If booting from the installation media, press F2 when the initial boot screen is displayed and provide the following additional parameters as part of the boot command:

```
mboot.c32 xen.gz extra_guest_irqs=64,2048 nr_irqs=2048 --- vmlinuz --- initrd.img
```

If using a kickstart installation, add the additional kernel parameters to the PXE configuration file.

If you want to make these changes permanent, edit the /boot/grub/grub.conf file in your Oracle VM Server after the installation has completed.

Bug 12657272

6.49 (x86 Only) Installation of Oracle VM Server on some HP Server Hardware May Fail if Tape Drive is Attached

Installation of Oracle VM Server may fail on some HP server hardware when the tape drive is attached, rendering error messages describing a problem with a call to "makeDriveDeviceNodes". To avoid this issue, disconnect the tape drive and begin the installation again.

Bug 14667345

6.50 (x86 Only) Wake On Lan (WOL) Fails if Oracle VM Servers on Different Subnets

Starting or restarting Oracle VM Servers fails if the Oracle VM Servers in a server pool are on different subnets.

Workaround: Use IPMI (Intelligent Platform Management Interface) to start or restart Oracle VM Servers in a server pool that are on different subnets.

Bug 12410458

6.51 (x86 Only) Inconsistent Master Role Assignment after Cluster Failure

If the master Oracle VM Server in a clustered server pool becomes unavailable or loses its connection to the storage containing the server pool file system, another Oracle VM Server takes over the master role and the server pool virtual IP. When the unavailable server comes back online, it rejoins the cluster, unless its access to the server pool file system is not (yet) restored. This is where the inconsistency occurs. The original master server contains information indicating it has the master role, while another server in the cluster may have assumed the master role in the meantime. If the entire cluster has been down, the original master server can continue to fulfill that role. If the cluster remained operational, however, changes may have occurred that the original master server has no information about. As a result, two Oracle VM Servers in the same clustered server pool may claim the master role and the virtual IP, and Oracle VM Manager may not be able to resolve that conflict.

Workaround: Manually assign the master role either to the original master or to another server that is still active within the cluster. Follow these steps:

1. In Oracle VM Manager, open the **Servers and VMs** tab.
2. In the navigation pane, select the server pool and click **Edit Server Pool**.
3. Select the appropriate server as master server and click **OK** to save your changes.

Bug 13875603

6.52 (x86 Only) Sun Fire X4170 Server Not Fenced During Cluster Failure

In some situations where a Sun Fire X4170 server has a hardware failure or fault/error, the Oracle VM Server may not be fenced and removed from the cluster, even though it is not available to participate in the cluster.

Workaround: Fix the hardware fault, and/or clear the error messages/faults using the ILOM CLI.

Bug 14463948

6.53 (x86 Only) Netconsole Error During Oracle VM Server Start-up, *Unknown Error 524*

To use netconsole you must specify a non-bridged eth*x* device, in the /etc/sysconfig/netconsole file on an Oracle VM Server, for example:

```
# The ethernet device to send console messages out of (only set this if it
# can't be automatically determined)
# DEV=
DEV=eth2
```

Bug 12861134

6.54 (x86 Only) ACPI Buffer Error After Installing Oracle VM Server

On some Intel-based systems, the following error may occur after installing Oracle VM Server when the computer is started:

```
[    0.674742] ACPI Error: Field [CPB3] at 96 exceeds Buffer [NULL] size 64 (bits)
  (20090903/dsopcode-596)
[    0.675167] ACPI Error (psparse-0537): Method parse/execution failed
[\_SB_._OSC] (Node ffff88002e4fba50), AE_AML_BUFFER_LIMIT
```

This has been observed on systems with the following BIOS information, but may also occur in other BIOS versions:

Vendor: Intel Corp. Version: S5500.86B.01.00.0036-191.061320091126 Release Date: 06/13/2009 BIOS Revision: 17.18 Firmware Revision: 0.0

HP ProLiant BL685c G6 HP BIOS A17 12/09/2009 Backup Version 12/01/2008 Bootblock 10/02/2008

This error can safely be ignored.

Bugs 12865298 and 12990146

6.55 (x86 Only) Radeon Ring Test Failed Error On Boot Resulting in Disabled GPU Acceleration

When booting Oracle VM Server on a system using a Radeon graphics adapter, and error may appear in the dmesg output similar to the following:

```
[drm:r100_ring_test] *ERROR* radeon: ring test failed
(scratch(0x15E4)=0xCAFEDEAD)
[drm:r100_cp_init] *ERROR* radeon: cp isn't working (-22).
radeon 0000:01:03.0: failed initializing CP (-22).
radeon 0000:01:03.0: Disabling GPU acceleration
```

Workaround: Ensure that the radeon module is loaded with the modeset parameter set to zero. To do this, add the following line in `/etc/modprobe.conf`:

```
options radeon modeset=0
```

In order for the change to take effect, you should reboot the server.

Alternatively, the parameter `radeon.modeset=0` can be appended to the boot options within `/boot/grub/grub.conf`. For example:

```
title Oracle VM Server (2.6.39-300.20.1.el5uek)
 root (hd0,0)
 kernel /xen.gz dom0_mem=987M
 module /vmlinuz-2.6.39-300.20.1.el5uek ro root=UUID=8d7687eb-fa2b-42ef-b411-044ba66cca6c
     radeon.modeset=0
 module /initrd-2.6.39-300.20.1.el5uek.img
```

Bug 14376597

6.56 NVMe Devices Not Supported

A kernel bug related to NVMe kernel modules can cause Oracle VM Server to crash at boot if an NVMe device is attached. To temporarily fix this problem, until the kernel bug is resolved, NVMe drivers are blacklisted within the Oracle VM Server configuration. This means that NVMe storage devices are not assigned a device node by the device mapper and do not appear as usable storage on any Oracle VM Server.

Bug 17923194

6.57 DPM Fails To Power On Server When Threshold Reached

If you configure a DPM policy with a very low threshold, it is possible that Oracle VM does not succeed in powering up a server to help balance load. The value required for this procedure very much depends on the system architecture of the servers within a deployment. In general, the CPU utilization threshold that should be configured for a DPM policy should not be set to a value below 25% usage.

Bug 18462929

6.58 Failed Server Evacuation Defined in DPM Policy Generates User Acknowledgeable Event

Certain conflicting and concurrent events can cause server evacuation, the process whereby running virtual machines are migrated to an alternate Oracle VM Server before shutdown due to a DPM policy, to fail. For instance, attempting to manually migrate a virtual machine on an Oracle VM Server at the same time that the DPM policy is attempting to shutdown the Oracle VM Server can cause the DPM policy to fail with a server evacuation error message. This leaves the Oracle VM Server in a warning state, which must be cleared before the server can return to normal operation.

Workaround: If a server is in warning state after a failed DPM operation, acknowledge the related event. The server assumes its normal operational role again and the warning is cleared.

Bug 18962618

6.59 Take Ownership of Oracle VM Server Fails with OVMRU_000009E Server Message

If two Oracle VM Manager instances have discovered an Oracle VM Server, and one instance releases ownership, and the other instance cannot take ownership of the Oracle VM Server. An error is returned:

```
OVMRU_000009E Server: @ server, is already owned by another Oracle VM Manager.
```

This occurs in both the Oracle VM Manager Web Interface, and the Oracle VM Manager Command Line Interface.

Workaround: Rediscover the Oracle VM Server and take ownership.

Bug 18684945

6.60 (SPARC Only) Uninstall of Oracle VM Agent on an Oracle VM Server in a Clustered Server Pool Fails To Unconfigure Cluster

An uninstall of the Oracle VM Agent on Oracle VM Server for SPARC should only be performed when the Oracle VM Server is no longer assigned to a server pool. This is particularly important if the Oracle VM Server is a member of a clustered server pool. However, if uninstallation is attempted on an Oracle VM Server that is part of a clustered server pool using the `ovs-agent-setup unconfigure` command, a Lock error may be returned during the process:

```
...
agent.lib.filelock.LockError: Lock file /var/run/ovs-agent/cluster.lock
failed: timeout occured.

Aborting the uninstallation because there was an error
```

```
during the unconfiguration of the Oracle VM Agent.
```

Workaround: Remove the cluster lock file before restarting the uninstall command:

```
# rm /var/run/ovs-agent/cluster.lock
# ovs-agent-setup unconfigure
```

Bug 18803682

6.61 Oracle Linux 7 and RedHat Enterprise Linux 7 Not Supported For PV Guests

Although Oracle Linux 7 and RedHat Enterprise Linux (RHEL) 7 are supported for both hardware virtualization (HVM) and hardware virtualization with paravirtual drivers (PVHVM), it is not possible to run either of these operating systems as paravirtualized domains (PVM). This is due to kernel restrictions in both Oracle Linux 7 and RHEL 7.

Bugs 18712168, 18667813, 18266964

6.62 (SPARC Only) Serial Console Hangs During Installation of Oracle Solaris 11 on Virtual Machine

The serial console in the Oracle VM Manager Web Interface hangs during the installation of Oracle Solaris 11 on a virtual machine.

Workaround: Manually access the console from the Oracle VM Server hosting the virtual machine, by identifying UUID and the port where the virtual machine is running, and then telnetting to that port from the Oracle VM Server. For example, to access the console for a virtual machine with UUID 0004fb00000600000a395ecc901e7822:

```
# ldm list
NAME                             STATE      FLAGS   CONS    VCPU  MEMORY   UTIL  UPTIME
primary                          active     -n-cv-  SP      16    16G      9.3%  44d 20h 41m
0004fb00000600000a395ecc901e7822 active     -n----  5000    8     4G       0.2%  2d 14m
0004fb000006000014fcd950934fbb3f active     -n----  5001    8     4G       0.6%  4d 22h 51m
0004fb00000600006e6e2b1504cf6f64 active     -n----  5003    8     4G       0.2%  2d 9m
0004fb00000060000fc8632393068ee2b active     -n----  5002    8     4G       0.2%  3d 19h 4m

# telnet localhost 5000
Trying ::1...
telnet: connect to address ::1: Connection refused
Trying 127.0.0.1...
Connected to localhost.
Escape character is '^]'.

Connecting to console "0004fb00000600000a395ecc901e7822" in group "0004fb00000600000a395ecc901e7822
Press ~? for control options ..
```

Bug 18082287

6.63 Editing Virtual Machine Configuration File Results in Unexpected Behavior

Any changes to the virtual machine configuration file should be performed using Oracle VM Manager. The only exception to this is if advised to manually edit the vm.cfg file by Oracle Support Services, or as explicitly specified in these Release Notes, such as in the case of Section 6.74, “(x86 Only) Virtual CDROM in PVHVM Guests not Initialized as IDE Device”.

Manual changes made to the virtual machine configuration file (vm.cfg) are not reflected in Oracle VM Manager. Any manual changes to the vm.cfg file may result in unexpected and undesirable behaviour. For example, if you edit the HA setting in the vm.cfg to disable HA, and the virtual machine is stopped by any method other than using Oracle VM Manager, the virtual machine is restarted. Oracle VM Manager is not aware of the HA change in the virtual machine's configuration file.

Bugs 12654125 and 13391811

6.64 Concurrent Template Operations May Fail Due to Lock Issue

When importing and deleting several templates concurrently, or when an Oracle VM Server is removed during the import of a template, a lock exception error may appear. However, the template upload often completes successfully despite the error message, but it does not appear in the list of available templates in the storage repository.

To resolve this problem, refresh the storage repository. The uploaded template file should then appear in the list. In some cases the imported template turns out to be incomplete. In that case, you should delete the template and import the template again.

6.65 (SPARC Only) Wrong Error Message Returned When Importing A Template From An Incorrect URL

If you attempt to import a template for a virtual machine from an incorrect URL located on an HTTPS server that has an SSL certificate that cannot be verified, an incorrect error message is returned indicating that the certificate could not be verified instead of the fact that the file could not be found.

If you receive an error indicating that the certificate could not be verified, check that the file that you are attempting to import is accessible at the URL that you provided.

Bug 18003814

6.66 Live Migration Fails but Oracle VM Manager Reports Running Virtual Machine on Target Oracle VM Server

When live migration of a virtual machine fails, Oracle VM Manager reports the migration job as failed. However, the migrated virtual machine may appear under the correct target Oracle VM Server in running status, as if the migration had completed successfully. At the same time, the virtual machine remains in running status on the Oracle VM Server it was supposed to be migrated away from, but Oracle VM Manager reports it as stopped.

Workaround: Kill the virtual machine affected by the failed migration operation on the target Oracle VM Server; then restart the server. Rediscover the Oracle VM Server on which the virtual machine was originally running, and it should appear again in running status.

Bugs 13939895, and 13939802

6.67 (x86 Only) Virtual Machine Fails to Restart On Another Server in the Cluster if ACPI is Enabled

A virtual machine may fail to restart on another server within the cluster when the original server becomes unavailable and ACPI power management is enabled within the BIOS for either of the Oracle VM Servers within the cluster.

Workaround: Disable ACPI within the BIOS for each of the Oracle VM Servers within the cluster.

Bug 14747722

6.68 (x86 Only) Oracle Solaris 10 Virtual Machine May Hang During Shutdown

When performing a graceful shutdown from within a virtual machine running Oracle Solaris 10, or when attempting to stop the virtual machine from within Oracle VM Manager, or when performing a migration of the virtual machine, the virtual machine may hang during the shutdown process. This may be caused by an operating system error, or some other unknown error. You can use the virtual machine console in the Oracle VM Manager Web Interface to check for operating system errors.

This bug does not affect virtual machines running Oracle Solaris 11.

Workaround: Kill the virtual machine affected using the **Kill VM** option within Oracle VM Manager.

Bug 15863719

6.69 (x86 Only) Virtual Machine Created with Network (PXE) Installation Does Proceed Beyond Pre Boot

Creating a virtual machine using the Network method (PXE) does not proceed beyond pre boot, so the virtual machine is not created. This occurs for Oracle Linux 5.*x* virtual machines.

Bug 12905120

6.70 (x86 Only) Hardware Requirements for Hardware Virtualized Guests

Creating hardware virtualized guests requires the Oracle VM Server has an Intel-VT (code named as Vanderpool) or AMD-V (code named as Pacifica) CPU. See the *Oracle VM Installation and Upgrade Guide* for a list of supported hardware.

6.71 (x86 Only) Maximum Memory to Start a PVM Guest is 470 GB

Although PVM guests are technically capable of running with up to 500,000 MB of virtual memory allocated, as described in Chapter 5, *Configuration Limits*, attempting to start a PVM Guest with more than 470 GB of memory can cause the virtual machine to crash on boot. This problem does not occur if the PVM Guest is started with 470 GB of memory. You are able to hot-add up to 500 GB virtual memory to the PVM Guest once it is running.

Bug 18538335

6.72 (x86 Only) 1 GB Huge Page Support On HVM Fails, 2 MB Pages Are Created Instead

Although the Oracle UEK3 kernel supports huge pages over 1 GB in size, a hardware virtualized guest running Oracle Linux with UEK3 installed may not recognize that 1 GB huge pages are supported, and the following error is displayed in the dmesg log:

```
hugepagesz: Unsupported page size 1024 M
Initializing cgroup subsys hugetlb
```

```
HugeTLB registered 2 MB page size, pre-allocated 2 pages
```

Workaround: A workaround has been published by Oracle support at:

https://support.us.oracle.com/oip/faces/secure/km/DocumentDisplay.jspx?id=1670223.1

Bug 17299364

6.73 (x86 Only) Creating a PVM Guest Slow Using Local Storage

Creating a PVM guest using local storage may take a very long time. This may be caused by write caching being turned off for the local disk.

Workaround: Enable write caching for the disk using the hdparam utility.

Bug 12922626

6.74 (x86 Only) Virtual CDROM in PVHVM Guests not Initialized as IDE Device

If the configuration file of a PVHVM virtual machine or template lists a virtual CDROM drive as an IDE device, that is as /dev/hda, dev/hdb, and so on, the virtual CDROM is not available inside the guest. To enable the CDROM drive inside the guest, it must be defined in the `vm.cfg` file as a paravirtual device, that is /dev/xvda, /dev/xvdb, and so on.

This is described in How are Virtual Disks Managed? in the *Oracle VM Concepts Guide*.

Bug 14000249 and 18012889

6.75 (x86 Only) Live Migration of a VM may be Affected by Guest Linux Kernel Version

Linux UEK x86_64 2.6.32-100.26.2.el5 as guest kernel does not work well for live migration. Please update to the latest UEK.

Bug 14276606

6.76 (x86 Only) Limitations for Hot-Changing Number of Virtual CPUs

For both hardware virtualized (HVM) guests and hardware virtualized guest with paravirtualized drivers (PVHVM), the possibility to change the number of virtual CPUs is limited by the kernel of the virtual machine. The table below provides an overview of guest kernel support; it applies to both x86 and x86_64 guest architectures.

Table 6.1 Guest kernel support for hot-changing virtual CPUs

Oracle Linux Version	Type	Kernel Version	Hot-Add	Hot-Remove
Oracle Linux R5U5	PVM	2.6.18-194.0.0.0.3.el5xen	**Yes**	**Yes**
Oracle Linux R5U5	PVHVM	2.6.18-194.0.0.0.3.el5	No	No
Oracle Linux R5U6	PVM	2.6.18-238.0.0.0.1.el5xen	**Yes**	**Yes**
Oracle Linux R5U6	PVHVM	2.6.18-238.0.0.0.1.el5	No	No

Oracle Linux Version	Type	Kernel Version	Hot-Add	Hot-Remove
Oracle Linux R5U7	PVM	2.6.32-200.13.1.el5uek	No	**Yes**
Oracle Linux R5U7	PVHVM	2.6.32-200.13.1.el5uek	No	No
Oracle Linux R5U8	PVM	2.6.32-300.10.1.el5uek	No	**Yes**
Oracle Linux R5U8	PVHVM	2.6.32-300.10.1.el5uek	No	No
Oracle Linux R6U1	PVM	2.6.32-100.34.1.el6uek	**Yes**	**Yes**
Oracle Linux R6U1	PVHVM	2.6.32-100.34.1.el6uek	No	No
Oracle Linux R6U2	PVM	2.6.32-300.3.1.el6uek	**Yes**	**Yes**
Oracle Linux R6U2	PVHVM	2.6.32-300.3.1.el6uek	No	No
Oracle Linux R5U8 with UEK2	PVM	2.6.39-100.5.1.el5uek	No	**Yes**
Oracle Linux R5U8 with UEK2	PVHVM	2.6.39-100.5.1.el5uek	No	No
Oracle Linux R6U2 with UEK2	PVM	2.6.39-100.5.1.el6uek	**Yes**	**Yes**
Oracle Linux R6U2 with UEK2	PVHVM	2.6.39-100.5.1.el6uek	**Yes**	No

Bugs 12913287, 13905845, 13823853, and 13898210

6.77 (x86 Only) Improving Mouse Pointer Control in Virtual Machine Console

When you launch the virtual machine console from Oracle VM Manager you may experience that the mouse pointer on your local machine and the mouse pointer in the virtual machine travel across the screen at different speeds.

If your guest virtual machine's operating system is Linux-based, the following workaround may reduce the mouse control issue. Enter the following on the guest's command line:

```
# xset m 1 1
```

6.78 (x86 Only) Solaris 10 Kernel Panic on Some AMD Systems

Virtual machines with the guest operating system Solaris 10 may experience kernel panic on systems with AMD processors. Kernel panic has been seen in Solaris 10 9/10 (Update 9) and Solaris 10 8/11 (Update 10).

Workaround: To work around this issue:

1. During the installation or first time boot up, edit the grub menu and append the `-kd` kernel boot parameter.
2. Continue with the boot to run the Solaris kmdb. When the following screen prompt is displayed:

   ```
   Welcome to kmdb
   [0]>
   ```

   Enter the command:

   ```
   cmi_no_init/W 1
   ```

Enter the following to continue the installation or system boot:

```
:c
```

3. After Solaris is installed and booted up, append the following line to the /etc/system file to make this change persistent across system reboot.

```
set cmi_no_init = 1
```

Bug 13332538

6.79 (x86 Only) Solaris 10 Release 8/11 Guest Hangs at Boot

When booting a virtual machine with Oracle Solaris 10 Release 8/11, the guest OS hangs when the copyright information screen appears. This is caused by a change in CPUID handling in dom0, which triggers a Solaris bug on platforms with CPUs of the Westmere-EP family.

Workaround: To make Solaris 10 run, kill the virtual machine from Oracle VM Manager and then apply the following manual fix:

1. At boot, edit the grub menu: append the `-kd` kernel boot parameter. This runs the Solaris kernel debugger.
2. Continue the boot sequence up to Solaris `kmdb`.
3. At the `kmdb` prompt, enter the following command:

```
Welcome to kmdb
[0]> apix_enable/W 0
```

4. Enter `:c` to continue the system boot sequence.
5. When Solaris has been installed and has successfully booted, make this fix persistent by adding the following line to `/etc/system`:

```
set apix_enable = 0
```

Bug 13876544

6.80 (x86 Only) Solaris 11 Guest With More Than 2 VCPUs Hangs at Boot

When booting a virtual machine with running Oracle Solaris 11 and configured with more than 2 virtual CPUs, the guest OS hangs. This may be caused by a Solaris bug related to a change in the Xen hypervisor.

Workaround: To make Solaris 11 run on Oracle VM 3.3 with more than 2 virtual CPUs, perform the following steps to implement a manual fix:

1. During the installation or first time boot up, edit the grub menu and append the `-kd` kernel boot parameter.
2. Continue with the boot to run the Solaris kmdb. When the following screen prompt is displayed:

```
Welcome to kmdb
[0]>
```

Enter the command:

```
cmi_no_init/W 1
```

Enter the following to continue the installation or system boot:

```
:c
```

3. After Solaris is installed and booted up, append the following line to the /etc/system file to make this change persistent across system reboot.

```
set cmi_no_init = 1
```

Bug 18547858

6.81 (x86 Only) Solaris 11 Release 2011.11 Guest Hangs at Boot

When booting a virtual machine with Oracle Solaris 11 Release 2011.11, the guest OS hangs. This is caused by a Solaris bug where interrupt storms occur on Intel systems based on Sandy bridge and Westmere CPUs. The issue has been fixed in Solaris 11 2011.11 SRU 2a.

Workaround: To make Solaris 11 2011.11 run on Oracle VM 3.3, use the SRU 2a, or apply the following manual fix to the GA release:

1. At boot, edit the grub menu: append the `-kd` kernel boot parameter. This runs the Solaris kernel debugger.

2. In the kernel debugger, enter the following commands:

```
[0]> ::bp pcplusmp`apic_clkinit
[0]> :c
kmdb: stop at pcplusmp`apic_clkinit
kmdb: target stopped at: pcplusmp`apic_clkinit: pushq %rbp
[0]> apic_timer_preferred_mode/W 0
pcplusmp`apic_timer_preferred_mode:    0x2    =    0x0
[0]> :c
```

3. Continue the system boot sequence.

4. When Solaris has been installed and has successfully booted, make this fix persistent by adding the following line to `/etc/system`:

```
set pcplusmp:apic_timer_preferred_mode = 0x0
```

For more information, please consult the Support Note with ID 1372094.1. You can also find this document by logging on to My Oracle Support and searching the knowledge base for `1372094.1`.

Bug 13885097

6.82 (x86 Only) Windows Server 2008 R2 x64 HVM Guests do Not Cleanly Shut Down

Windows Server 2008 Release 2 64-bit hardware virtualized guests fail to shut down cleanly. After the guest has been shut down, and started again, Windows reports that it was not shut down cleanly.

This is not an issue for Windows Server 2008 Release 2 32-bit hardware virtualized guests with paravirtualized drivers (PVHVM).

Bug 12658534

6.83 (SPARC Only) Memory Size Mismatch Between Virtual Machine and Oracle VM Manager After a Hot Add or Remove

When adding or removing memory for a running virtual machine Oracle VM Server for SPARC, the request to add or remove memory may be partially fulfilled. In such a case, Oracle VM Manager does not report any error after the memory add or remove operation, and Oracle VM Manager indicates that the entire operation has succeeded. However the virtual machine is actually allocated an amount of memory different from the amount indicated by Oracle VM Manager.

The correct amount of memory will be restored when the virtual machine is stopped and then restarted.

Bug 14844937

6.84 (SPARC Only) Need Actual Available Memory for Live Migration

If the virtual machine memory is less than the available memory on the Oracle VM Server that the virtual machine is to be migrated to, the migration may fail with an error message stating that there is not enough memory available to complete the request. This is due to memory fragmentation on the target server. The details of this are discussed in http://docs.oracle.com/cd/E35434_01/html/E23807/migratingactivedomain.html#memory.

Bug 14851322

6.85 (x86 Only) Changing VM Type and Disabling Huge Pages at the Same Time Fails

If you create a virtual machine using the paravirtualization (PVM) mode with huge page support enabled, and then attempt to change both the mode to PV-HVM or HVM and disable huge page support at the same time, an error similar to the following is returned:

```
OVMRU_005086E VM: vm1. Huge pages is not compatible with the VM's domain type: Xen HVM.
```

Workaround: Perform these changes as two discrete actions. First edit the virtual machine to disable huge page support, then edit the virtual machine to change the virtualization mode.

Bug 18499531

6.86 (x86 Only) Network Card Limit in Virtual Machines

Oracle VM Manager supports eight network cards for each HVM virtual machine as outlined in Table 5.1 “Virtual Machine Maximums”. However, the system library does not allow users to add more than *three* network cards when creating a virtual machine from installation media.

Workaround: After the virtual machine is created, add up to *five* new network cards by editing the virtual machine in Oracle VM Manager.

6.87 (x86 Only) QLogic QLE8242 CNA Card is Not Supported On Oracle VM Server

QLogic currently does not provide a supported driver for the QLE8242 CNA network card on Oracle VM Server 3.1.1 or 3.2.1. Installation of the provided RedHat driver fails with the error message, `Cannot determine the Redhat release`.

Bug 14300919

6.88 QLogic cLOM8214 1/10 Gigabit Ethernet NIC Initializes with Link State Down

On some systems, such as the HP ProLiant DL980 G7 server, the QLogic cLOM8214 1/10GbE NIC initializes with link state down.

Workaround: To work around this problem install the qlcnic driver module with the option "use_msix=0". To do this, create the file `/etc/modprobe.d/qlcnic.conf` and ensure that it contains the following line:

```
options qlcnic use_msi_x=0
```

For the change to take effect, you should reboot the server. To temporarily disable the option for the module without rebooting, you can perform the following steps:

```
# ifconfig ethx down
# rmmod qlcnic
# modprobe qlcnic use_msi_x=0
```

Bug 15865548 and 18072952

6.89 Renaming of QLogic cLOM8214 1/10 Gigabit Ethernet NIC is Incorrect

On some systems at initial install, udev may rename the QLogic cLOM8214 1/10GbE Ethernet port to __tmpxxxxxxxx. This is due to a slow initialization of the port.

Workaround: Determine which interface name the QLogic cLOM8214 1/10GbE Ethernet NIC should use, for example eth1. Find the MAC address for the QLogic cLOM8214 1/10GbE Ethernet NIC that you want to configure. You can do this by running the following command and studying its output to find the incorrectly named interface:

```
# cat /etc/issue
IF : bond0      MAC : 1c:c1:de:74:b9:34 IP : 10.211.1.135
IF : eth0       MAC : 1c:c1:de:74:b9:34
IF : eth1       MAC : 1c:c1:de:74:b9:35
IF : __tmp713192749     MAC : 24:be:05:ef:5a:f4
```

In `/etc/sysconfig/network-scripts`, create an `ifcfg-`*`ethx`* configuration file for the interface name that you wish to use and ensure that the file contains a line that expresses the MAC address for the NIC that you want to assign to this interface name. For example, using the example output from the previous command, you could create a new file at `/etc/sysconfig/network-scripts/ifcfg-eth2` with the following contents:

```
DEVICE=eth2
BOOTPROTO=none
HWADDR=24:BE:05:EF:5A:F4
ONBOOT=yes
```

Finally, bring up the interface using the `ifconfig` command. For example:

```
ifconfig eth2 up
```

Bug 15897549

6.90 (x86 Only) TPA disabled for Broadcom 10 Gigabit Ethernet

To solve a networking bug where Broadcom 10 Gigabit Ethernet NICs would throw crash information on HP ProLiant DL980 G7 servers when used for a virtual machine network, resulting in adverse performance, TPA is disabled for the bnx2x driver module.

If the port is used for dom0 traffic only, you can enable TPA by creating an entry for the bnx2x module in `/etc/modprobe.d/ovm.conf` on the Oracle VM Servers that are affected:

```
options bnx2x disable_tpa=0
```

Bug 15971208

6.91 (x86 Only) Broadcom BCM5754 Gigabit Ethernet Does Not Support Jumbo Frames

The Broadcom BCM5754 Gigabit Ethernet network controller does not support Jumbo Frames.

6.92 (x86 Only) Incorrect ARP Reply When Using Jumbo Frames

ARP Flux can cause confusion to some 10G switches when using jumbo frames causing network traffic to stop.

Workaround: disable ARP flux on the affected server. If the interfaces are all on different sub-networks, run the following command:

```
# sysctl -w net.ipv4.conf.all.arp_filter=1
```

If some of the interfaces are on the same sub-network, run the following commands:

```
# sysctl -w net.ipv4.conf.all.arp_ignore=1
# sysctl -w net.ipv4.conf.all.arp_announce=2
```

If you wish to make these changes permanent, add the relevant ARP parameter settings to `/etc/sysctl.conf`:

```
net.ipv4.conf.all.arp_filter=1
net.ipv4.conf.all.arp_ignore=1
net.ipv4.conf.all.arp_announce=2
```

Bug 17982926

6.93 (x86 Only) ARP Packet Checksum Errors

VLANs over bond mode 6 (balance-alb) bridge interface are not supported as this mode is incompatible with VLAN bridge interfaces.

Workaround: There are two workarounds for this problem:

- Use bond mode 6 as a bridge interface; do not use VLANs over bond mode 6.
- Use VLANs over bond modes (1=active-backup or 4=802.3ad) as a bridge interface.

6.94 (x86 Only) Changing Cluster Heartbeat Network Does Not Reflect New IP Address

If you move the Cluster Heartbeat network role to another network, with a different IP address, the change is not reflected in the Oracle VM Servers.

Workaround: Edit the `/etc/ocfs2/cluster.conf` file on each Oracle VM Server in the network to reflect the new IP address, and restart each Oracle VM Server.

Bug 12870099

6.95 NFSv4 Read/Write Delegation Not Supported

As of Release 3.3.1, Oracle VM does not support NFS V4 read/write delegation. NFS V4 delegation must be disabled on network storage devices used for Oracle VM.

For example, to disable read/write delegation on a NetApp filer, go to the NetApp console. Select `FilerView`, then click `NFS->Configure`. Select `no` on the following two pull-down menus:

- Enable Read Delegation on NFS Version 4
- Enable Write Delegation on NFS Version 4

Bug 18391474

6.96 (x86 Only) Unclean File System Causes Errors When Used as a Server Pool File System

If a server pool file system is not clean (contains existing files and server pool cluster information) and used to create a server pool, a number of errors may occur.

- Cannot create a server pool using the file system. The following error is displayed:

```
OVMAPI_4010E Attempt to send command: create_pool_filesystem to server: server_name failed.
OVMAPI_4004E Server Failed Command: create_pool_filesystem  ... No such file or directory
```

  Bug 12839313

- An OCFS2-based storage repository becomes orphaned (the clusterId that was used when the OCFS2 file system was created no longer exists), you cannot mount or refresh the repository, and the following error is displayed:

```
"OVMRU_002037E Cannot present the Repository to server: server_name. Both server and repository
need to be in the same cluster."
```

Workaround: Clean the file system of all files before it is used as a server pool file system.

Bug 12838839

6.97 (SPARC Only) Agent Fails to Reconcile Multipath LUNS If Solaris I/O Multipathing is Disabled

If you attempt to configure iSCSI disks that have multiple paths on an Oracle VM Server for which Solaris I/O Multipathing (MPxIO) has been disabled, the Oracle VM Agent for SPARC incorrectly returns multiple LUNs to Oracle VM Manager resulting in misconfiguration that could cause unexpected behavior.

Solaris I/O Multipathing should not be disabled on an Oracle VM Server, particularly where that server may access iSCSI disks with multiple paths.

Bug 18648267

6.98 (x86 Only) Size of New LUN on Server is Incorrect If an Existing LUN Is Unmapped First

If a LUN belonging to an unmanaged Fibre Channel array is unmapped from a server and a new target is mapped to it using the same LUN, then after rescanning the physical disks on that server, the size of the new LUN is set to the size of the LUN that was unmapped.

Remapping LUNs is risky because it can data corruption since the targets have been switched outside of the server. An error should appear in the messages file:

```
Warning! Received an indication that the operating parameters on this
target have changed. The Linux SCSI layer does not automatically adjust
these parameters.
```

Workaround: Ensure that when exposing a new target, you do so with a LUN that has not previously been used since the last reboot.

Bug 14851579

6.99 (x86 Only) Remapping LUNs Causes Storage Refresh To Hang

If an ISCSI NetApp storage array is refreshed within Oracle VM Manager after a LUN is unmapped at the array, and then refreshed again after the LUN is mapped back the second refresh may hang.

This is due to the fact that the Oracle VM Server sees the LUN size as zero and fails the multipath path to the LUN while the default path checker for NetApp `TUR` sees the path as up. The vacillating path statuses can cause IO to the affected LUN to hang.

Remapping LUNs is risky because it can data corruption since the targets have been switched outside of the server.

Workaround: One way to ensure that the Oracle VM Server maintains a consistent view of the path and avoids a possible hang scenario is to change the path checker for NetApp in `mulipath.conf` to `directio`. Note that `directio` is not considered as performant as `TUR`. Running the following command on the affected Oracle VM Server clears the hang:

```
# iscsiadm -m node -R
```

Bug 18421164

6.100 Refresh Servers Should Only Be Used For Non-Uniform Exports

Refresh servers are intended to be used when non-uniform exports are used on a file server. They should not be used or configured for uniform exports since they are all required to be available to complete a repository refresh.

If a refresh server is marked as down for a non-uniform export, it is not possible to refresh the repository. If you need to perform a repository refresh while a refresh server is down, you must reconfigure the file server to remove the refresh server. In the case where uniform exports are defined, the designated admin servers are used to perform the refresh.

Bug 18915825

6.101 (x86 Only) LUNs Must Be Cleaned Prior to Storage Repository Creation

When you attempt to create a storage repository on a LUN that was previously used by another clustered server pool, the operation will fail. This is due to a built-in mechanism that prevents the creation of a new OCFS2 file system if the disk or partition already contains cluster data.

Workaround: Clear all files and file system information on the LUN before placing a storage repository on it.

Bug 13806344

6.102 NetApp ONTAP (8.2 c-mode) Operating System Does Not Work With Oracle VM

The current NetApp ONTAP (8.2 c-mode) operating system has an NFS related issue with the `showmount -e` command. This issue prevents Oracle VM from seeing any NFS file systems on a NetApp storage appliance running this operating system.

NetApp has provided a workaround for ONTAP 8.2 on the NetApp support site. Further instructions are provided for resolving this issue on My Oracle Support with Doc ID 1640848.1 available at the following URL:

https://support.oracle.com/epmos/faces/DocumentDisplay?id=1640848.1

You must reapply the workaround after you have upgraded an Oracle VM Server.

Bugs 18098710, 18672536

6.103 (x86 Only) Black Listing of System Disks for Legacy LSI MegaRAID Controllers Not Supported

Oracle VM Server cannot add the system disks for Legacy LSI MegaRAID (Dell PERC4) bus controllers to the `/etc/blacklisted.wwids` file, so the disks are not blacklisted in the multipath configuration. This occurs because the bus controllers are not capable of returning a unique hardware ID for each disk. Using system disks on Legacy LSI MegaRAID (Dell PERC4) bus controllers is therefore not supported.

Bug 12944281

6.104 (x86 Only) Blacklisting of System Disks for Multipathing Fails on HP Smart Array (CCISS) Disk Devices

Installing Oracle VM Server on an HP Smart Array (CCISS) fails to blacklist system disks (they are not included in the `/etc/blacklisted.wwids` file). Messages similar to the following are logged in the `/var/log/messages` file:

```
multipathd: /sbin/scsi_id exited with 1
last message repeated 3 times
```

Workaround: Configure multipathing to blacklist the CCISS system devices by adding a new line to the `multipath.conf` file:

```
# List of device names to discard as not multipath candidates
#
## IMPORTANT for OVS do not remove the black listed devices.
blacklist {
        devnode "^(ram|raw|loop|fd|md|dm-|sr|scd|st|nbd)[0-9]*"
        devnode "^hd[a-z][0-9]*"
        devnode "^etherd"
+       devnode "^cciss!c[0-9]d[0-9]*"    <<====
        %include "/etc/blacklisted.wwids"
}
```

Note

This workaround is not required for HP Smart Array disks backed by the HPSA module.

Bug 12722044

6.105 (x86 Only) HP Smart Array CCISS Disk Devices Are Not Supported For Creation of Local Storage Repositories

HP Smart Array disk devices backed by the older CCISS module are not supported for use as a local storage repository, or for use as raw disks for virtual machines, or for server pool file systems. HP Smart Array disk devices backed by the HPSA module are fully supported.

To verify whether the controller has support for the HPSA module, first obtain the PCI ID of the raid controller for the local disk using the following command:

```
lspci -vnn|grep "RAID bus controller"
```

Check the list of controllers supported by the HPSA module to confirm whether or not your controller's PCI ID appears within the list, by running the following command:

```
modinfo hpsa -F alias
```

If your controller is supported, ensure that you use the HPSA module instead of the CCISS module for your controller.

Bug 16072257

6.106 Multi-homed NFS Shares Are Not Supported

When an NFS file server has two IP addresses, it cannot expose the same file system over both interfaces. This situation would occur if you configure both IP addresses as separate access hosts; for example to provide access to different Oracle VM Servers via different paths. As a result, the same file system would correspond with two different storage object entries, each with a different path related to each of the IP addresses. As a storage server can only be represented by one object, this configuration is not supported in Oracle VM Release 3.3.

Workaround: Configure only one access host per storage server.

6.107 (x86 Only) Multipath SAN Boot with Single Path Causes Kernel Panic or File System to be Read-Only

On a multipath SAN boot server with only one active path from server to storage, there is a potential risk of kernel panic, or the file system becoming read-only when doing storage rescans. This occurs because multipath SAN boot is only supported with full path redundancy. A minimal full path redundancy configuration can be illustrated as:

```
Server HBA1 --- FC switch 1 ---- Storage controller 1 port1
                              |-- Storage controller 2 port1

Server HBA2 --- FC switch 2 ---- Storage controller 1 port2
                              |-- Storage controller 2 port2
```

Workaround: Configure multiple paths to the file systems, instead of a single path.

Bug 13774291

6.108 (x86 Only) Multiple Paths Used in Multipath Environments on Oracle Pillar Axiom Storage

When performing a fail-over (for example, by disabling one protocol such as Fibre Channel), the paths are grouped and the traffic flows through all protocols (for example, both Fibre Channel and ISCSI), which is not as expected. This also occurs with fail-back. This issue occurs in all Oracle VMReleases since 3.1.1.

Workaround: Run the following commands on the Axiom server:

```
# service multipathd restart
# multipath -v3
```

Bugs 14329375 and 14314282

6.109 Refreshing a NAS-based File System Produces Invalid/ Overlapping Exports

When a NAS-based file system is refreshed, it may produce invalid or overlapping exports. During a file system refresh job, all mount points defined in the NAS-based file server's exports file are refreshed, even file systems that are not intended to be used in Oracle VM environments.

Top level directories which also contain subdirectories in the exports file may also cause problems, for example, if an export file contains /xyz as an export location, and also contains /xyz/abc. In this case, the following error may be displayed during a refresh file system job:

```
OVMRU_002024E Cannot perform operation. File Server: server_name, has invalid exports.
```

Workaround: For the second issue, to work around this problem, do not export top level file systems in the NAS-based file server's exports file.

Bug 12800760

6.110 (x86 Only) SAS Disks Only Supported in Local Configuration

Only local SAS storage is supported with Oracle VM Manager. Oracle VM Release 3.3 does not support shared SAS storage (SAS SAN), meaning SAS disks that use expanders to enable a SAN-like behavior can only be accessed as local storage devices. Oracle VM Manager recognizes local SAS disks during the discovery process and adds these as Local File Systems. SAS SAN disks are ignored during the discovery process and are not accessible for use by Oracle VM Manager.

It is possible to determine whether SAS devices are shared or local by running the following command:

```
# ls -l /sys/class/sas_end_device
```

Local SAS:

```
lrwxrwxrwx 1 root root 0 Dec 18 22:07 end_device-0:2 ->\
 ../../devices/pci0000:00/0000:00:01.0/0000:0c:00.0/host0/port-0:2/end_device-0:2/sas_end_device/
   end_device-0:2
lrwxrwxrwx 1 root root 0 Dec 18 22:07 end_device-0:3 ->\
../../devices/pci0000:00/0000:00:01.0/0000:0c:00.0/host0/port-0:3/end_device-0:3/sas_end_device/
  end_device-0:3
```

SAS SAN:

```
lrwxrwxrwx 1 root root 0 Dec 18 22:07 end_device-0:0:0 -> \
../../devices/pci0000:00/0000:00:01.0/0000:0c:00.0/host0/port-0:0/expander-0:0/port-0:0:0/
  end_device-0:0:0/sas_end_device/end_device-0:0:0
lrwxrwxrwx 1 root root 0 Dec 18 22:07 end_device-0:1:0 -> \
../../devices/pci0000:00/0000:00:01.0/0000:0c:00.0/host0/port-0:1/expander-0:1/port-0:1:0/
  end_device-0:1:0/sas_end_device/end_device-0:1:0
```

For SAS SAN storage, note the inclusion of the expander within the device entries.

Bug 13409094

6.111 Errors Occur when Storage Plug-in Versions Do Not Match Oracle VM Server Version

Oracle VM Storage Connect plug-ins for generic as well as vendor-specific storage hardware exist in different versions that have been adapted for use with a particular release of Oracle VM Server. If storage operations in Oracle VM Manager fail consistently with your storage plug-in, verify that the correct plug-in version is installed on your Oracle VM Servers. The lists below show compatibility of Oracle VM Storage Connect plug-ins for Oracle VM Server version 3.0.3, version 3.1.1 and version 3.2.1.

Oracle VM Server Release 3.2.1 (GA release) compatible plug-ins:

- osc-plugin-manager-1.2.8-26.el5
- osc-plugin-manager-devel-1.2.8-26.el5
- osc-oracle-ocfs2-0.1.0-38.el5
- osc-oracle-netapp-1.2.8-7.el5
- osc-oracle-generic-1.1.0-74.el5
- osc-oracle-s7k-0.1.2-50.el5

Oracle VM Server Release 3.1.1 (GA release) compatible plug-ins:

- osc-plugin-manager-devel-1.2.8-19.el5
- osc-oracle-netapp-1.2.8-6.el5
- osc-plugin-manager-1.2.8-19.el5
- osc-oracle-generic-1.1.0-55.el5
- osc-oracle-s7k-0.1.2-45.el5
- osc-oracle-ocfs2-0.1.0-36.el5

Oracle VM Server Release 3.0.3 (GA release) compatible plug-ins:

- osc-plugin-manager-devel-1.2.8-9.el5
- osc-oracle-netapp-1.2.8-1.el5
- osc-plugin-manager-1.2.8-9.el5
- osc-oracle-generic-1.1.0-44.el5
- osc-oracle-s7k-0.1.2-31.el5

- osc-oracle-ocfs2-0.1.0-31.el5

Bug 13938125

6.112 (x86 Only) Shared OCFS2 Cluster File System on Virtual Disk Not Supported

When you create a configuration with virtual machines sharing an OCFS2 cluster file system on a virtual disk, severe I/O interruptions may occur. These may affect the heartbeating function of a clustered server pool and even cause Oracle VM Servers to reboot. Therefore, a shared OCFS2 cluster file system on a virtual disk is not a supported configuration.

Workaround: Use a physical disk or LUN. Make sure that the virtual machines in your configuration have shared access to this physical disk or LUN, and create the shared OCFS2 cluster file system there.

Bug 13935496

6.113 Virtual Disk Images Must Be Properly Aligned To The OCFS2 Block Size For Performance

If the partitions for a virtual disk are not properly aligned to the OCFS2 block size, OCFS2 serializes I/O to the virtual disk image resulting in degraded performance. This only affects virtual disk images stored on OCFS2 repositories and does not apply to NFS repositories.

Workaround: Check for misaligned partitions in the virtual disk images and, if any are found, recreate the disk images with properly aligned partitions. To determine whether partitions are correctly aligned, use `fdisk -lu` to find the starting sectors of the partitions. Ensure that these are a multiple of 8 (512 byte sectors), which aligns them at 4 KB, the OCFS2 block size.

Note

Many recent operating systems often start the first partition in sector 2048, aligning it to 1 MB, which works well for most storage RAID stripe sizes.

Bug 14355588

6.114 Oracle VM Manager Command Line Interface Backspace Key

In some command line terminals, the backspace key prints the previous line when the input wraps over two lines, for example:

```
OVM> create Vm name=MyVM repository=MyRepository domainType=XEN_HVM startPolicy=
USE_POOL_POLICY on ServerPool name=MyServerPool
Command: create Vm name=MyVM repository=MyRepository domainType=XEN_HVM startPol
icy=USE_POOL_POLICY on ServerPool name=MyServerPool
Status: Success
Time: 2014-03-17 05:25:29,912 CET
JobId: 1395030328969
Data:
  id:0004fb0000060000d38427b0b1fd06b7  name:MyVM
Use up arrow key to display previous command.
OVM> create Vm name=MyVM repository=MyRepository domainType=XEN_HVM startPolicy=
USE_POOL_POLICY on ServerPool name=MyServerPool
Use backspace key to delete last character from the command.
OVM> create Vm name=MyVM repository=MyRepository domainType=XEN_HVM startPolicy=
create Vm name=MyVM repository=MyRepository domainType=XEN_HVM startPolicy=USE_P
```

```
OOL_POLICY on ServerPool name=MyServerPoo
The first line of the command is printed again.
Use backspace key again to delete last character from the command.
OVM> create Vm name=MyVM repository=MyRepository domainType=XEN_HVM startPolicy=
create Vm name=MyVM repository=MyRepository domainType=XEN_HVM startPolicy=USE_P
create Vm name=MyVM repository=MyRepository domainType=XEN_HVM startPolicy=USE_P
OOL_POLICY on ServerPool name=MyServerPo
The first line of the command is printed again.
```

While this does not affect the editing or submission of the command, it may be difficult to read the command being edited. This issue has been seen on some GNOME window managers.

Workaround: Use PuTTY to connect to the CLI. Alternatively, you can use xterm, with the correct wraparound options. You should enable the xterm auto-wraparound (-aw) and reverse-wraparound (-rw) options. To set the xterm wraparound options correctly, start xterm with the `xterm -aw -rw` command.

Bugs 16810639 and 16049754

6.115 Oracle VM Manager Command Line Interface `create repositoryexport` Command Offers Non-Configurable Option

The Oracle VM Manager Command Line Interface offers a non-configurable attribute as an option for the `create repositoryexport` command in the inline help. For example:

```
OVM> create repositoryexport name=repoexport clienthostname=MyServer
repository=MyRepo exportfstype=?

                          NFS,UNKNOWN
```

The `exportfstype` option no longer exists and the value presented in the inline help cannot be set. Attempting to set this option with one of these values results in an error:

```
Configurable attribute by this name can't be found.
```

Bug 18528652

6.116 Oracle VM Manager Command Line Interface `create vmclonestorageMapping` Allows THIN_CLONE cloneType On NFS

While thin cloning is only supported on OCFS2 file systems and the Oracle VM Manager Web Interface does not provide the option to create a clone storage mapping for a thin clone on an NFS file system, the Oracle VM Manager Command Line Interface does not prevent you from doing this. Therefore, a command similar to the following succeeds:

```
OVM> create vmclonestorageMapping name=clonestoragemapping
cloneType=THIN_CLONE vmDiskMapping=0004fb0000130000ef5b6a1671333bb3
repository=nfsrepo on vmclonecustomizer name=clonecustomizer1
```

However, when a clone is created using the clone customizer that this clone storage mapping is attached to, the action fails due to the fact that the clone target does not support the thin clone cloneType:

```
OVM> clone vm name=vm1.0 destType=vm serverPool=MyServerPool
cloneCustomizer=clonecustomizer1 targetRepository=nfsrepo
Command: clone vm name=vm1.0 destType=vm serverPool=MyServerPool
cloneCustomizer=clonecustomizer1 targetRepository=nfsrepo
Status: Failure
Time: 2014-05-06 22:40:33,755 PDT
JobId: 1399441233570
```

```
Error Msg: Job failed on Core: OVMRU_007013E Cannot thin clone: System.img
(2), to: nfsrepo. The clone target does not support thin cloning. [Tue May 06
22:40:33 PDT 2014]
```

This is expected behavior, but the flexibility offered by the Oracle VM Manager Command Line Interface is inconsistent with the Oracle VM Manager Web Interface and can result in misconfiguration by a user.

Bug 18716652

6.117 No Default Value Set For Access Port When Using `create storagearray`

Although the `create storagearray` command can be used without setting a value for the access port, the object that is created when you do this has no port value set and is unusable until this is remedied. This situation becomes apparent when attempting to discover physical disks on the storage array since the port value is wrong. Therefore, when using the `create storagearray` command you must specify the access port value as part of the command. The standard value for this port is usually 3260.

If you have created a storage array and you did not specify the access port, you must edit the storage array either using the Oracle VM Manager Web Interface or the Oracle VM Manager Command Line Interface to provide a value for the access port before you are able to use the storage array.

Bug 18797279

6.118 During Upgrade Other Users Must Not Be Logged Into the Oracle VM Manager Host

Ensure that no other Linux users have access to the Oracle VM Manager host and that any monitoring services are disabled during the upgrade process.

Bug 18222521

6.119 Temporary Files Must Be Manually Deleted After Upgrade of Oracle VM Manager

Particular temporary files are generated during an upgrade of Oracle VM Manager from releases prior to 3.3. These files are useful to Oracle Support in a situation where an upgrade fails to complete successfully and the Oracle VM Manager database has not been adequately backed up prior to attempting upgrade. For this reason, they are not removed automatically as part of the upgrade process. These files contain information about the Oracle VM deployment that should not be left in temporary file space indefinitely. Therefore, it is appropriate that you remove these files after you have verified that your upgrade has completed successfully and that your environment is behaving as expected. Instructions are provided in Removing Temporary Files After Upgrade in the *Oracle VM Installation and Upgrade Guide*.

Bug 18220949

6.120 Jobs and Some Events Are Not Inherited After Upgrade

When upgrading from a 3.2 or 3.1 release, job history and some events are not retained during the upgrade process. This is due to a complete redesign of the jobs and events code within Oracle VM Manager in the 3.3 release. There is no way to access the job history after upgrade.

Bug 18659511

6.121 The P2V Conversion Utility is Not Available on the Oracle VM Server ISO

Although the P2V utility is described in the documentation in Converting a Host in the *Oracle VM Administrator's Guide*, the P2V Utility is not available on the Oracle VM Server ISO for this release. Therefore, when attempting to use the P2V Utility on the Oracle VM Server ISO, the Oracle VM Server installer is started instead.

Workaround: Download the latest Oracle VM Server 3.2 ISO from https://edelivery.oracle.com/oraclevm and use this ISO to access the P2V Utility as described in Using the P2V Utility in the *Oracle VM Administrator's Guide*.

Bug 18851530

6.122 Unicode is Not Supported in Assemblies

Using unicode or multibyte characters for appliance or server names within an assembly is not supported within Oracle VM.

Bug 14624338

6.123 XML Tags in Object Names and Description Cause Errors When Using the REST WS-API With XML

There are no restrictions on the content that can be used in an object name or description within Oracle VM Manager, however if XML tags are present in a name or description field for any object within Oracle VM Manager and your WS-API client is using the REST API with an XML media type, errors are likely to occur.

In general, you should avoid inserting XML into the name and description fields within Oracle VM Manager. However, if this problem already exists, you may see an error similar to the following:

```
javax.xml.stream.XMLStreamException: ParseError at [row,col]:[1,432983]
Message: The character sequence "]]>" must not appear in content unless used
to mark the end of a CDATA section.]
```

Either remove any XML tags from the names and descriptions of all objects within Oracle VM Manager, or use the REST API with a JSON media type. Alternatively, you can use the SOAP API with an XML media type and this error does not occur.

Bug 18449946

6.124 Untagged VLAN Interface Missing After Upgrade of Oracle VM Manager

In releases prior to 3.3, if VLAN port group names have one or more commas in them, they may not be parsed correctly when Oracle VM Manager is doing a re-discover of an Oracle VM Server after Oracle VM Manager has just been upgraded to 3.3. In the case of an untagged VLAN interface, this can lead to the VLAN interfaces or the underlying port not being associated with a network in Oracle VM Manager. However, the Oracle VM Server is still configured correctly.

Performing a re-discover of the Oracle VM Server after the upgrade to 3.3 corrects the view that Oracle VM Manager has of the network configuration. In version 3.3, VLAN port groups have been removed. Therefore, once the system is upgraded to version 3.3 and a re-discover is done, the issue is resolved.

Bug 18758922